Vol. 14, No. 3, Summer 2014

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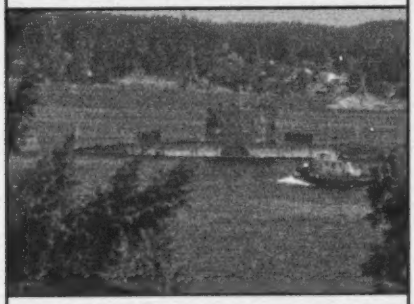
by Edgar Bundy
Canadian War Museum 19710261-0110



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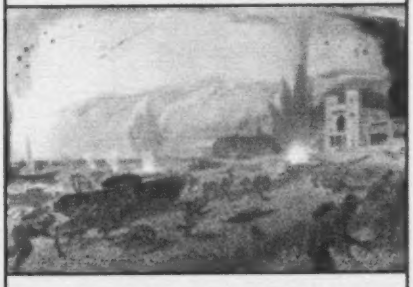

Know Your Ground: A Look at Military Geographic Intelligence and Planning in the Second World War

The Duty to Remember is an Integral Part of Bilateral Relations

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NOTE TO READERS

As a bilingual journal, readers should take note that where citations are translated from their original language, the abbreviation [TOQ] at the end of the note, which stands for "translation of original quote", indicates to the readers that the original citation can be found in the published version of the Journal in the other official language.

EDITOR'S CORNER

Summer is (almost) here again in the Great White North, and so are we, with what we hope will be a stimulating and informative *potpourri* of offerings.

We are now entering an extended period of commemoration of young-Canada's commitment to service in the two global wars of the 20th Century. Accordingly, this issue's cover, *Landing of the First Canadian Division at Saint-Nazaire* by the English artist, Edgar Bundy, visually depicts the landing in France of the 3rd Canadian Infantry Brigade in February 1915. In the left foreground marches the Band of the Black Watch, while to the right in review stand Canada's Minister of Militia, Sir Sam Hughes, and Generals Richard Turner and Frederick Loomis. The background is dominated by the steamship *Novian*, and this magnificent painting currently graces the Senate Chamber in Ottawa.

In our first major article, The University of British Columbia's Professor Michael Byers, a frequent contributor to these pages, "...examines the various arguments frequently advanced for continuing Canada's submarine program. [It] finds that none of those arguments hold water in present – and reasonably foreseeable – geopolitical and technological circumstances." In counterpoint, the Canadian Staff College's Professor Paul Mitchell, *also* a frequent contributor to the Journal, opines that Canada has a responsibility to help preserve international order, and that submarines have a legitimate role to play therein. "It is not in our interests to see that order eroded to the point that instability abroad begins to affect our local peaceful environment. In this effort, submarines can play a critical role for robust military response, [and]...they can do so in a far more economical and discreet fashion than many other forms of military power."

These duellists are followed by Intelligence Officer Jonathan Racicot, who tables a fascinating and timely study with respect to Chinese cyber operations, their past initiatives, present capabilities, and possible future intentions. He is followed by Major-General (Ret'd) Daniel Gosselin, who recently completed a nine-month tour as Strategic Advisor to the incumbent Chief of the Defence Staff, General Tom Lawson, and who "...examines the evolution of the role of senior civilian public service employees inside the Department of National Defence, analyzing the pivotal events and phases that have shaped the expanding role of civilians since the early-1960s." Two major articles dealing with Canadian military history are then offered. In the first, Lori Sumner, an Air Logistics Officer, examines the impact of military geographic intelligence and planning during the Second World War, and concludes that, "Geographic intelligence must remain an essential part of military planning at all levels, from the tactical decision of how to assault an enemy's position, to determining how to maneuver one's forces on the battlefield at the right time as part of an overall strategy for winning a war." In the second article, Adam Goulet reviews the activities and accomplishments of the Colonial Militia of Vancouver Island and mainland British Columbia from 1853 until 1871, and concludes with a call for national support of our proud Reserve units, regardless of politics or economics.

Following several stimulating and diversified opinion pieces, our own Martin Shadwick takes a look at Canada's future maritime Intelligence, Surveillance and Reconnaissance (ISR) needs, focussing specifically upon the near-term CP-140 *Aurora* upgrade and life-extension program. Martin then concludes that in the future, "Canada's maritime surveillance/ISR needs must increasingly be met by a holistic blend of manned aircraft, satellites, and UAVs." Then, Canadian Defence Academy Public Affairs Officer Sylvain Chalifour has identified a significant shortcoming in professional defence-related study and analysis for the nation's French-speaking population, and offers a journal review article of an excellent French periodical dedicated to that purpose. We then close with a brace of book reviews to pique the interest of our readership.

While we here at the *Canadian Military Journal* (on-line at www.journal.forces.gc.ca) [both official languages] are very proud of our continuous commitment to publish material dealing with all matters of defence issues to the nation and our global friends, we would be remiss if we did not mention that other significant sources of defence commentary and analysis are 'alive and well' on the Canadian scene. The *Canadian Army Journal*, "...a refereed forum of ideas and issues," is the official professional publication of the Canadian Army. Published three times a year (Spring, Summer, Autumn), it is "...dedicated to the expression of mature professional thought on the art and science of land warfare, the dissemination and discussion of doctrinal and training concepts, as well as ideas, concepts and opinions by all army personnel and those civilians with an interest in such matters." Available on-line at www.army.forces.gc.ca/caj [both official languages]. Not to be outdone, the Royal Canadian Air Force publishes its own professional quarterly, the Royal Canadian Air Force Journal, a "...forum for discussing concepts, issues, and ideas that are both crucial and central to aerospace power. The *Journal* is dedicated to disseminating the ideas and opinions of not only RCAF personnel, but also those civilians who have an interest in issues of aerospace power." Available on-line at: http://trenton.mil.ca/lodger/CFAWC/eLibrary/Publications_e.asp, in both official languages. Further, the *Canadian Naval Review* is published quarterly by the Centre for Foreign Policy Studies (CFPS) at Dalhousie University in Halifax. "It is a professional journal examining a wide range of maritime security issues from a Canadian perspective, [and] it focuses upon strategic concepts, policies, historical perspectives and operations of the Royal Canadian Navy, plus oceans policy, marine affairs and national security in general." Available on-line at http://www.navalreview.ca. Other notables include the Conference of Defence Associations Institute (CDAI), "...the oldest and most influential advocacy group in Canada's defence community, representing over 50 associations across the country." At its very core is the mandate to promote informed public debate on national security and defence issues. The Institute's publicly available research and publications, including their excellent *Vimy Papers*, each of which addresses a critical strategic defence and security issue for Canada and Canadians, are available on-line in English and French at http://www.cdainstitute.ca. The Canadian Forces College (CFC) in Toronto is also a rich treasure trove of student papers, as well as the higher-level Strathrobyn Papers, which are intended to "...

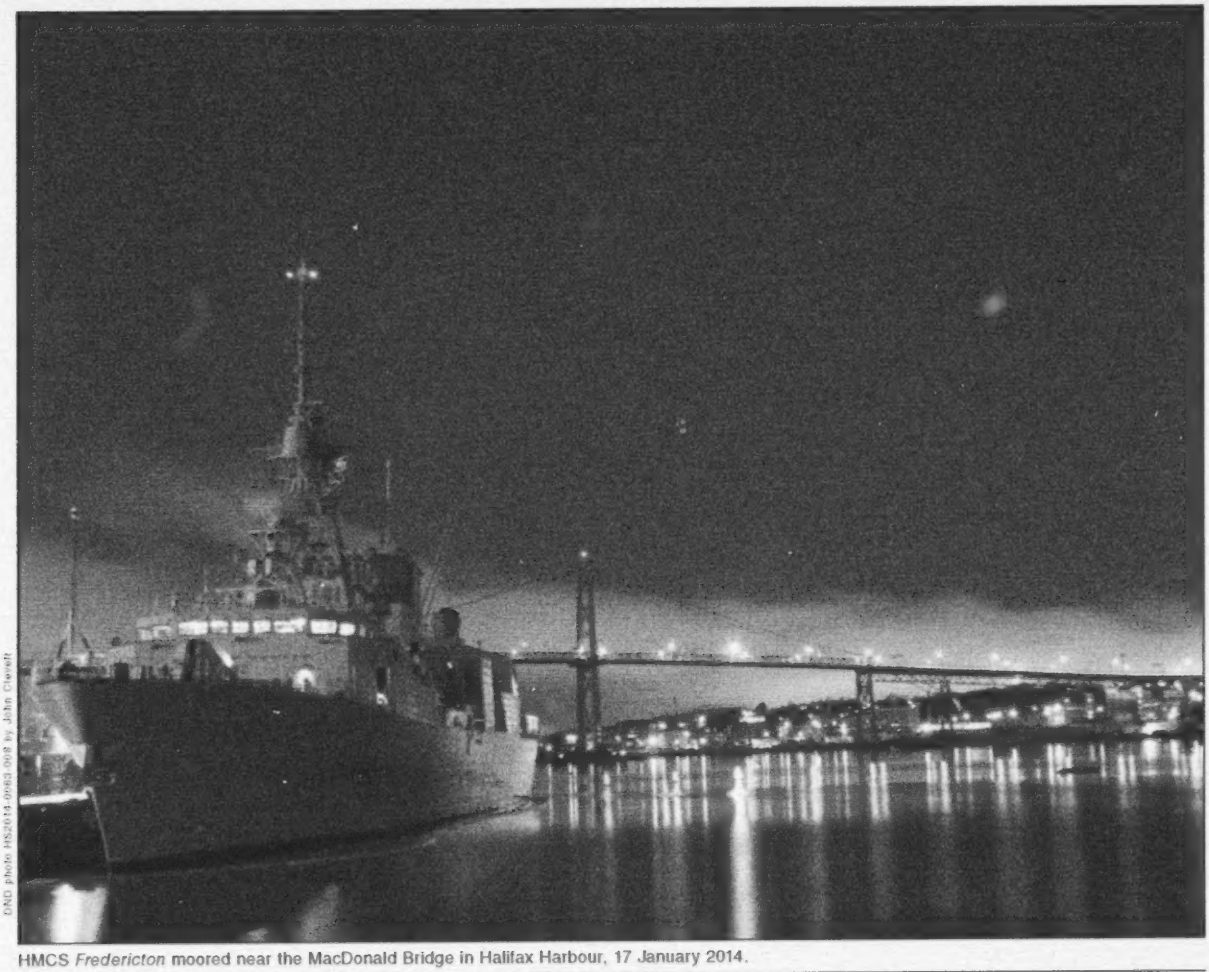
present the research and thinking of the College faculty and other security and defence researchers." The latter are available on-line at http://www.cfc.forces.gc.ca/237/420-eng.html. The student papers are indexed and available by author and subject matter/title on the CFC website under Research at: http://www.cfc.forces.gc.ca/303/171/171-eng.html. [English and French language papers].

While this initial list is by no means comprehensive or exclusive, other Canadian defence publications will be acknowledged in later issues of the *Journal*.

On a related note, Canada's Chief of the Defence Staff (CDS), General Tom Lawson, issued his *Guide to Professional Reading* on 29 April 2014. The Guide was prepared by the staff at the Canadian Defence Academy, and it is being widely distributed throughout DND and the CAF. It is believed to be the first such guide promulgated by a CDS, and it comprises 13 categories of reading, ranging from the philosophy of war, strategy, operational art, and military history by virtue of a number of entries related to critical thinking. For those interested, the *Guide* can be accessed electronically through a link on the CDS's home page, at www.forces.gc.ca/en/about-org-structure/chief-of-defence-staff.page, [available in both official languages].

Until the next time.

David L. Bashow
Editor-in-Chief
Canadian Military Journal



DND photo HS2014-0563-08 by John Clewett

HMCS *Fredericton* moored near the MacDonald Bridge in Halifax Harbour, 17 January 2014.

Dear Editor,

I wish to take issue with the accepted wisdom (if such a thing exists) that Canada's defence procurement system is irretrievably broken. This narrative, recounted in Martin Shadwick's *Commentary* [Vol. 14 No. 1], does not adequately apply the scientific method to justify this rather damning conclusion. While I would be the last to deny that the system has its challenges, a better scientific sample of acquisitions and a broader understanding of the issue would yield a more balanced assessment.

Consider:

1) Procurement includes *all* contracts – not just the big ones

As the system is charged with delivering all manner of goods and services, it cannot be fairly judged by its (in)ability to see through only a select number of Major Crown Projects. Clearly, focusing upon this sub-category of procurements does not provide an adequate sample to conclude that the system is not working. Literally thousands of small- to medium-sized contracts are let every year. A system that is broken is by definition incapable of managing such a large number of diverse projects, ranging from cleaning services and spare parts, to chartered sealift and satellite imagery, to say nothing of new transport aircraft. For a military struggling to maintain broad-based capabilities, Canada doesn't do so poorly.

One should also recall that if government policy dictates that a certain operation is a matter of national priority, the system *will* be (indeed, *must* be) directed at that mission, even if it means short-changing others. This is a matter of capacity, and it does not necessarily indicate systemic failure. Indeed, such a scenario offers the procurement system the opportunity to show what it can do in a crisis. Canada 'moved mountains' to satisfy urgent operational requirements in Afghanistan – so much so that our allies were literally astonished by how we were able to deliver such a wide variety of, in many cases, very sophisticated equipment to troops in the field in relatively short order.

2) Many, if not most, complex projects *are* successful

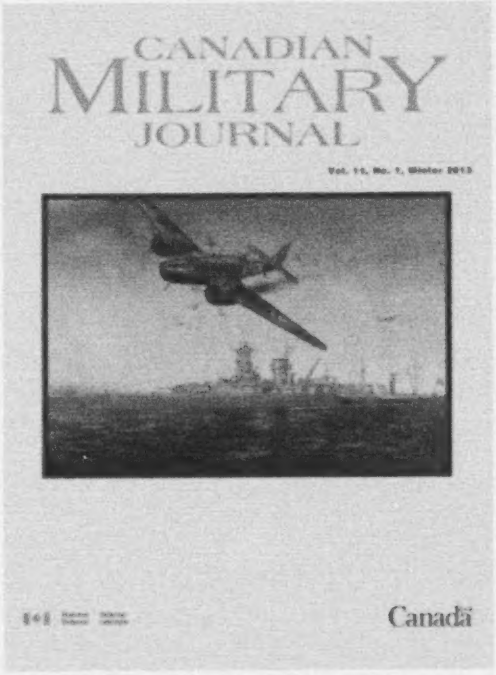
It is ironic that while procurement 'failure' is newsworthy, successes often are not. One significant omission in the sample in Professor Shadwick's column is the *Halifax*-class frigate life extension (HCM). This is considered an extremely complex and risky undertaking because of the many systems to be upgraded, as well as the time and budgetary constraints imposed upon the $2-billion project. And yet, all indications are that HCM is proceeding *on schedule* and *within budget*. Add to this the procurement successes of recent years (C-130J, C-17, CH-147, TAPV, *Leopard 2*, MilCOTS truck, AHSVS, M777 howitzer, MALE UAV, *Orca*-class training vessel, and so on), and one has a rather powerful rebuke to the allegation that the system cannot deliver.

3) The system can 'succeed' even when a project 'fails'

There seems to be no widely-accepted definition of 'procurement failure.' When the intention to pursue an acquisition is announced, when a project management office is stood up, there is an expectation that it will carry through to a successful conclusion (i.e. contract signing and delivery). When this doesn't happen, when the project is knocked off course or non-delivery is the result, the charge of failure is made. But the Government of Canada or DND is free to change its mind at any time during the process – either for budgetary reasons, or as a result of a policy review or a change in government. If any of these conditions result in a stop-work order, this is not the procurement system's fault. Indeed, the system can work perfectly – even to the point of choosing a winner in a competition (i.e. Close Combat Vehicle, EH-101 helicopter) – only to see the buyer's priorities change. The problem of non-delivery may not, therefore, be inherent to the system itself, but rather to external factors.

4) The procurement system may not have been engaged when 'failure' occurred

The saga of the F-35 may not, as some have suggested, have highlighted the shortcomings of the procurement system. This is because the system has arguably not yet become actively engaged in the search for a new fighter aircraft. The recommendation to proceed with a sole-source acquisition of the F-35 came from the air



force, based upon a statement of operational requirement that *followed* rather than *preceded* the choice of the aircraft. Although this recommendation received high-level departmental support, those charged with carrying out the acquisition had not begun to exercise their mandates when the government set aside the recommendation. To be sure, the lines between various phases on an acquisition – i.e., options analysis and definition – may sometimes be blurred. But it seems clear that the fighter project was quite far from progressing to the implementation phase when a 're-think' was ordered. Thus, the procurement system cannot be pilloried if it had not yet 'kicked into high gear.'

5) The system is the sum of its departmental parts

It is not simply DND that is accountable for (non-)delivery; Public Works and Industry Canada are part of the effort. Delays may originate from them as well as from DND. There are long-standing concerns that a lack of trained procurement staff in all departments (combined with high turn-over among military program staff) has slowed the pace of re-capitalization, resulting in DND being unable to spend its entire budget. Thus, corrective measures across several departments (not just DND) may be required. At the very least, the interplay between program budgets and the human resources required to administer them needs to be better understood.

Only time will tell if the government's new Defence Procurement Strategy will address these issues. Improvements are sorely needed, but there are insufficient grounds for the charge of systemic failure.

David Rudd
Ottawa

Subject: Reference "A Canadian Remembrance Trail for the Centennial of the Great War?" by Pascale Marcotte, *Canadian Military Journal*, Vol. 14, No. 1, Winter 2013

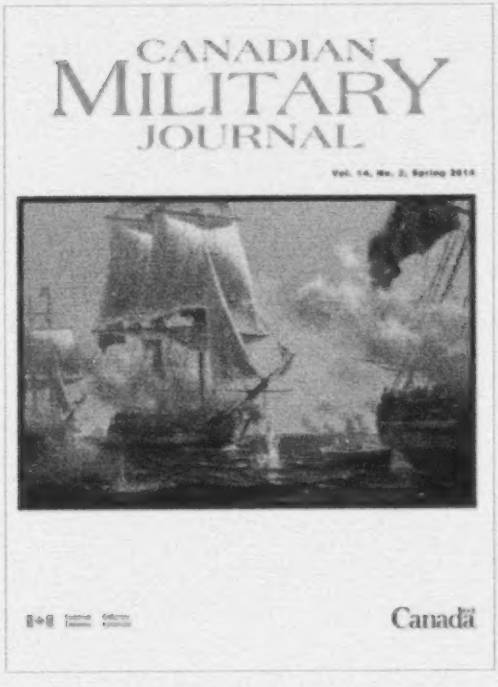
Dear Editor,

In reference to Pascale Marcotte's excellent article in your recent issue of the CMJ, I would like to add that at least one Canadian regiment is near completion of a similar remembrance trail. Since 2010, three former officers of the 48th Highlanders of Canada have orchestrated a memorial project in which permanent brass markers have been erected at the First World War battle sites at which the 15th Battalion, Canadian Expeditionary Force (CRF) fought. These markers describe, in both official languages, these battles, and, more specifically, the involvement of the 15th Battalion. The markers are located at many of the major CEF Battlefield locations of the day, such as 2nd Ypres, Mount Sorrel, Festubert, and Canal du Nord. A detailed article written by Brigadier-General (ret'd) Greg Young, former Commander Land Forces Central Area, can be found in the attached link to the regimental newsletter of the 48th Highlanders of Canada.

http://48highlanders.com/Downloads/Falcons/27Falcon_Winter2013.pdf

Thank you.

Cordially,
David H. Tsuchiya
Captain
Adjutant, 32 Canadian Brigade Group Headquarters

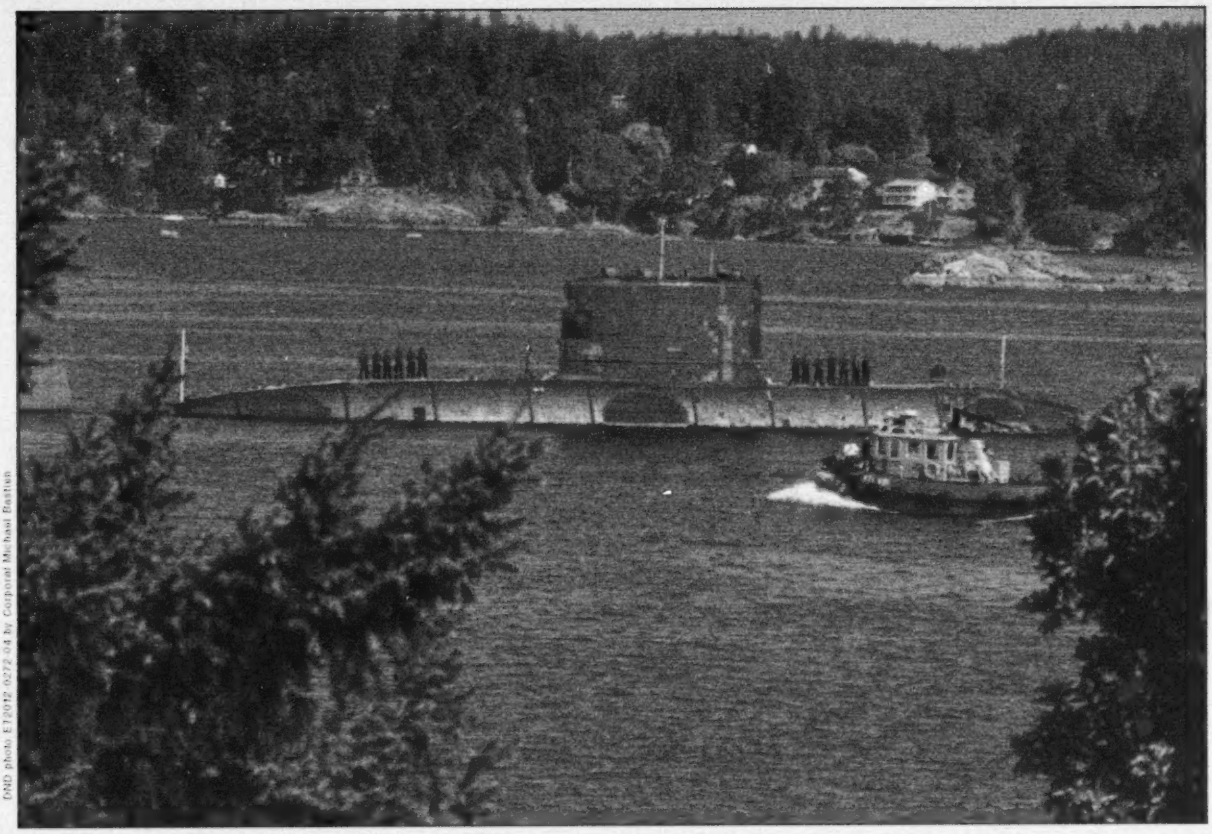


Dear CMJ,

I just wanted to give a quick thanks for including the article, "Was It Worth It? Canadian Intervention in Afghanistan and Perceptions of Success and Failure," by Professor Sean Maloney in the Volume 14, Number 2 (Spring 2014) issue of the *Canadian Military Journal*. It was an 'eye opener,' even for myself. I have been in the military for nine years, and reading this article made me realize that even those of us in uniform are not immune to being *highly* influenced by the media. The article was well-written, extremely informative, and it really made me think. I am not generally a voracious reader, so I found the piece to be particularly meaningful.

Thanks again for your great work!

Greg Jones
Captain
CANSOFCOM/COMFOSCAN



DND photo ET2012-0272-04 by Corporal Michael Bastien

HMCS *Victoria* enters Esquimalt Harbour, 14 September 2012.

Does Canada need submarines?

by Michael Byers

Michael Byers, PhD, *holds the Canada Research Chair in Global Politics and International Law at the University of British Columbia. His most recent book is* International Law and the Arctic *(Cambridge, UK: Cambridge University Press, 2013).*

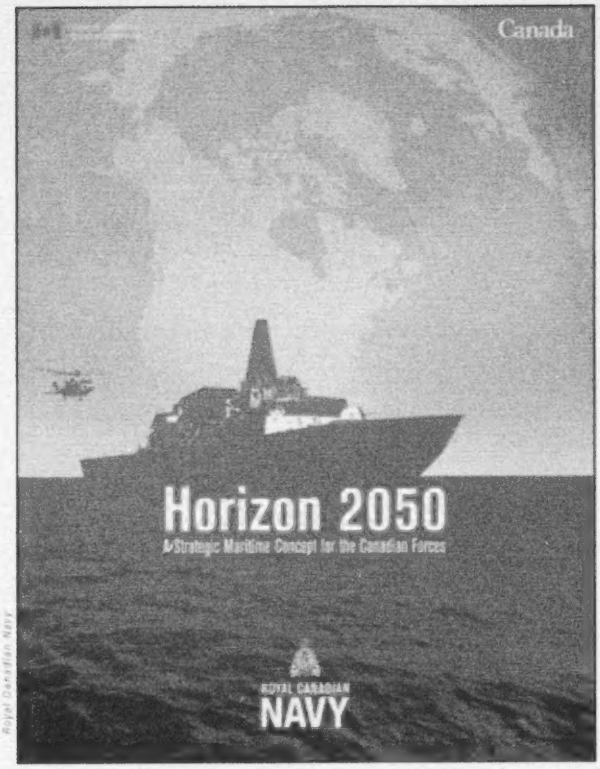
Introduction

Military procurement features prominently in Canadian public policy discussions, not least because the federal government plans on spending $240 billion over the next two decades on ships, maritime helicopters, fighter jets, search and rescue aircraft, and army vehicles.[1] However, one particular procurement is nearly always absent from those discussions, namely, the replacement of Canada's *Victoria*-class submarines. The HMCS *Chicoutimi*, *Victoria*, *Corner Brook*, and *Windsor*, launched by Britain between 1990 and 1993 and purchased secondhand by Canada in 1998, are currently between 20 and 23 years old.

The Royal Canadian Navy (RCN) predicts that the submarines will remain operational until 2030.[2] Yet, there are reasons – including poor construction, corrosion caused by lengthy storage in salt water, and a series of accidents – to suspect their lifespan will be shorter.[3] And with naval procurements in Canada currently taking 10-15 years, a decision will soon have to be made on whether to replace them. As far back as 2006, the Senate Committee on National Security and Defence recognized the need to plan ahead, writing: "The Victoria-class submarines are approaching their mid-life point. As soon as the submarines are fully operationally ready, planning for their mid-life refits and eventual replacement should begin."[4]

That planning will, necessarily, begin with an evaluation of whether submarines are in fact needed for Canada. The government has experience making such evaluations: In the mid-1990s, according to John Ivison of the *National Post*, "…the Liberal government considered getting out of the submarine business altogether."[5] In 2008, the Conservative government considered scrapping the *Victoria*-class submarines, before deciding to spend $1.5 billion on refits and repair.[6] In 2012, again according to Ivison, the Department of National Defence (DND) was concerned that the government might terminate Canada's submarine program for cost-savings reasons.[7]

In order to facilitate the government's evaluation of whether replacement submarines are needed, this article examines the various arguments previously advanced for continuing Canada's



Royal Canadian Navy

submarine program. It finds that none of those arguments hold water in present – and reasonably foreseeable – geopolitical and technological circumstances.

Is there a risk of actual armed conflict?

It would be difficult to justify spending billions of dollars on replacement submarines without first identifying a risk of actual, inter-state armed conflict. Today, Canadian proponents of submarines point to an increasingly powerful and assertive China.

In 2010, DND produced a major planning document entitled *Horizon 2050: A Strategic Concept for Canada's Navy*. Although the document has not been released publicly, it is widely considered to already be guiding procurement decisions. The most detailed revelations of the contents of *Horizon 2050* come from the distinguished political scientist Elinor Sloan. It is therefore worth quoting her at length:

> "Horizon 2050: A strategic concept for Canada's navy" draws attention to "the ever-latent possibility of conflict among great states," which, in its judgement, is likely to grow. The maritime domain, it argues, will become increasingly contested over the coming years and decades, the product of a combination of several challenges. They include, among other things: demography and population growth leading to progressively urbanized coastal areas; global demand for energy, raising issues of energy security and fuelling maritime boundary disputes over energy resources on the sea bed; climate change, the impact of which is expected to be felt most strongly in littoral regions of the world; failed states incapable of implementing effective state control over coastal areas; and continued and accelerated globalization, making the ocean nodes and chokepoints of commerce especially vulnerable to disruption by a range of criminals, terrorists, and irregular forces.
>
> One outcome of these trends, the paper argues, is that "we should anticipate the possible re-emergence of inter-state maritime armed conflict... including the possibility that certain states will seek to deny others access to their maritime approaches." The document speaks in generalities, without reference to any specific country. Nonetheless, it is difficult not to read "China" between the lines. "Some adversaries," it states, "will have the ability to employ more sophisticated area denial capabilities... using 'high-end' conventional or asymmetric capabilities such as advanced missiles or submarines."
>
> Against these potential challenges, Canada is not expected to be a bystander. "Horizon 2050" emphasizes that Canada "can contribute meaningfully to the joint and combined campaign with maritime forces that are prepared to wage and win the war at sea," with credible, combat-capable maritime forces to control events in contested waters, and contain or isolate conflict through contributions to coalition or alliance maritime operations.[8]

Although it is difficult to critique a document that is not public, the strategic concept as reported by Sloan does seem somewhat 'blinkered.' Nowhere is there any mention of China's heavy reliance upon international trade. A member of the World Trade Organization (WTO) since 2001, China is the world's largest exporter,[9] the world's second largest creditor-state after Japan, and the largest creditor of the United States.[10]

Since 2010, Canadian foreign policy has focused upon the increasingly important economic relationship with China, which extends to a Foreign Investment Promotion and Protection Agreement that, once ratified, would limit the rights of the federal and provincial governments with respect to Chinese state-owned companies operating in Canada.[11] Further, in 2012, Prime Minister Harper and President Hu Jintao announced exploratory discussions on a possible free trade agreement and concluded a legally binding protocol to supplement the existing Nuclear Cooperation Agreement, designed to "facilitate the export of Canadian uranium to China."[12]

The tension between *Horizon 2050* and this new emphasis upon Canadian-Chinese cooperation may explain why the RCN's strategy document has not been publicly released. In any event, it seems doubtful that speculative security concerns about a country that has been embraced by the Canadian government as central to our trade and foreign policy can reasonably be used to justify spending billions of dollars on submarines.

Are submarines needed for the Arctic?

During the acquisition of the *Victoria*-class submarines, the RCN emphasized their potential Arctic capabilities. For instance, Lieutenant-Commander Dermot Mulholland was quoted as saying: "Air independent propulsion will give us the capability at some point in the future to operate for several

Reuters/STR/China by Carlos Barria

Shanghai's financial district of Pudong, as seen from the top of the Shanghai Tower.

weeks at a time without operating the air breathing engine, and that would enable us to go under the ice."[13] However, air independent propulsion is not built-in to the submarines, nor was the feature pursued at any point after the acquisition of the fleet – meaning they cannot operate under Arctic ice.

Nevertheless, proponents of a continued Canadian submarine capability often point to the Arctic in justification. DND cites the fact that HMCS *Corner Brook* took part in the annual Operation *Nanook* in August 2007 and 2009, while omitting to mention that the submarine remained in the seasonally ice-free waters of Baffin Bay.[14]

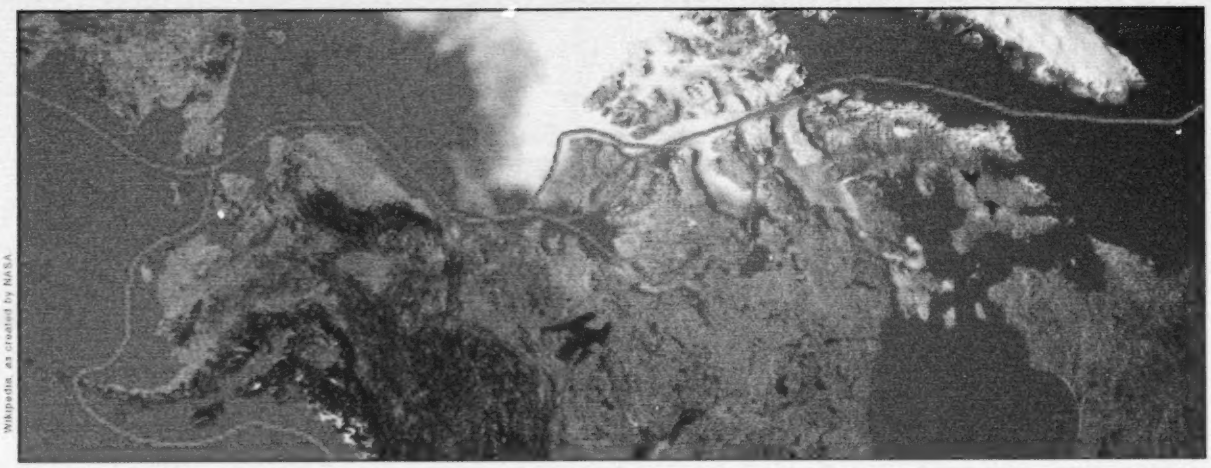
Concerns about Arctic sovereignty have also featured prominently in Stephen Harper's public statements. In 2007, the Prime Minister said: "Canada has a choice when it comes to defending our sovereignty in the Arctic: either we use it or we lose it."[15] In reality, the Arctic has become an area of increased and increasing cooperation. The Cold War ended more than two decades ago and Russia is now a member of the WTO, G20, Council of Europe, and Arctic Council. In January 2010, behind closed doors, Stephen Harper reportedly told the Secretary General of NATO: "Canada has a good working relationship with Russia with respect to the Arctic" and that "there is no likelihood of Arctic states going to war."[16]

Senior members of the Canadian and US militaries have confirmed these views. In 2009, Canada's then-Chief of the Defence Staff, General Walter Natynczyk, said: "If someone were to invade the Canadian Arctic, my first task would be to rescue them."[17] In 2010, then-US Chief of Naval Operations, Admiral Gary Roughead, produced a memorandum on Navy Strategic Objectives for the Arctic that stated: "…the potential for conflict in the Arctic is low."[18] To the degree that security threats exist in the Arctic today, they concern non-state actors such as drug smugglers and illegal immigrants. Submarines are an expensive and inefficient response to these challenges.

In short, those who use the Arctic to justify a continued Canadian submarine capacity cannot point to any geopolitical changes in the region that strengthen the case for submarines. To the contrary, the case is much weaker today than it was in 1989, when the Cold War was still on – and the Mulroney government cancelled its plan to purchase nuclear-powered submarines.

Are submarines needed to protect Canada's Northwest Passage claim?

Canada and the United States have long disagreed on the legal status of the Northwest Passage. The United States claims the narrowest stretches of the waterway constitute an

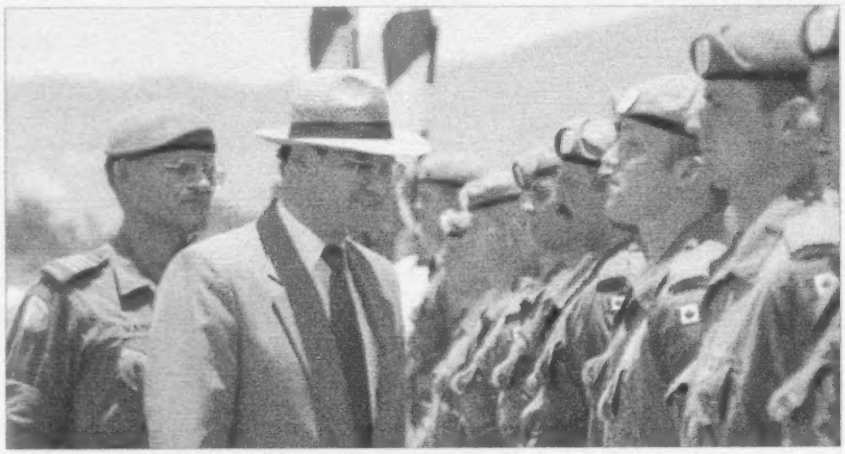


Wikipedia, as created by NASA.

The Northwest Passage

"international strait" through which vessels from all countries may pass freely. The criteria for an international strait, according to the International Court of Justice in the 1949 *Corfu Channel Case*, are: "... its geographical situation as connecting two parts of the high seas and the fact of its being used for international navigation."[19] Foreign vessels sailing through an international strait necessarily pass within 12 nautical miles of one or more coastal states, but instead of the regular right of "innocent passage" through territorial waters, they benefit from an enhanced right of "transit passage."[20] This entitles them to pass through the strait without coastal state permission, while also freeing them from other constraints. For instance, foreign submarines may sail submerged through an international strait – something they are not permitted to do in regular territorial waters.[21]

Canada maintains that the Northwest Passage constitutes "internal waters." Internal waters are *not* territorial waters, and permission of the coastal state is required for entry. When foreign ships enter internal waters with permission, which is what ships do every time they enter a port in another country, their presence does not undermine the internal waters claim.



DND photo IE96-635-10A

Minister of National Defence David Collenette in 1996

Soviet submarines entered the Northwest Passage without permission during the Cold War.[22] However, they never threatened Canada's legal position there, because the whole purpose of submarines is to remain *covert*, and only *overt* actions can undermine or create rights under international law.[23] The United States also sent submarines through the Northwest Passage, beginning with the USS *Seadragon* in 1960.[24] What is not clear is whether the United States had sought Canada's permission for such voyages, and whether permission had been granted.

Publicly, Canada has chosen to ignore the issue of submarine transits, and total ignorance would work in Canada's favour, because (as mentioned above) covert actions cannot make or change international law. However, it seems likely that Canada, as a military ally of the United States in both NATO and NORAD, has known about at least some of the US submarine traffic and simply kept quiet. Such a combination of knowledge and passive acquiescence could undermine Canada's legal position, were evidence of it made public, since this would establish actual non-consensual usage of the Northwest Passage by international shipping.

It is just as likely that the US submarine traffic has taken place with Canada's consent. In 1995, then-Defence Minister David Collenette was asked in the House of Commons about submarines in the Northwest Passage. He replied: "I believe we have a novel diplomatic arrangement with the United States under which they inform us of activities of their nuclear submarines under the ice, which enables us to at least say they are doing it with our acquiescence."[25] When an opposition Member of Parliament sought to verify the statement, Collenette corrected himself:

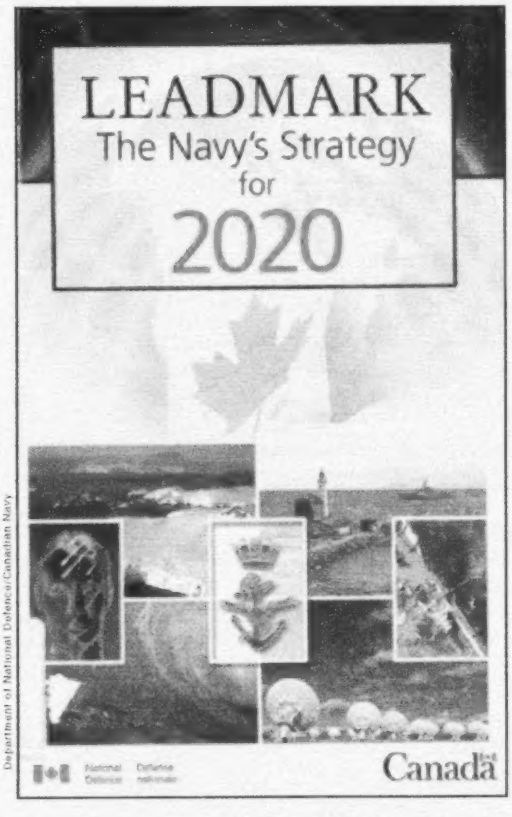
> There is no formal agreement covering the passage of any nation's submarines through Canadian Arctic waters. However, as a country that operates submarines, Canada does receive information on submarine activities from

our Allies. This information is exchanged for operational and safety reasons with the emphasis on minimizing interference and the possibility of collisions between submerged submarines.[26]

A decade later, another defence minister referred to the arrangement as a "protocol." Bill Graham assured the *Globe and Mail* that the United States "would have told us" before any of their submarines transited Canadian waters.[27]

> "It is just as likely that the US submarine traffic has taken place with Canada's consent."

If a bilateral agreement on submarine voyages in the Canadian Arctic Archipelago exists, it is likely modelled upon the 1988 Arctic Cooperation Agreement, which, in the context of voyages by US Coast Guard icebreakers, specifies: "... [that] nothing in this agreement...affects the relative positions of the Governments of the United States and of Canada on the Law of the Sea."[28] In other words, the voyages are without prejudice to either side's position in the legal dispute. If there is no such agreement, however, and if Canada is told about the voyages without being asked for permission, that combination of knowledge and acquiescence could, again, potentially undermine its legal position – if and when the situation was ever made public. All that said, the issue of submarine voyages remains 'off the table,' legally speaking, as long as both Canada and the United States continue to treat these activities as officially secret – which is exactly what they seem intent upon doing. For all these reasons, Canadian submarines would add little to Canada's legal position, even if they could operate under the ice.



Department of National Defence/Canadian Navy

Are submarines needed to maintain Canada's participation in water space management and intelligence sharing?

It is sometimes argued that a submarine capability is needed because it "admits Canada to that exclusive group of states participating in regulated and highly classified submarine water space management and intelligence-sharing schemes."[29] The term "water-space management" refers to the sharing of information between allies concerning the location of their submarines, so as to avoid accidents.

However, Arctic waters are cold, remote, mostly shallow, relatively uncharted, and littered with icebergs that reach deep into the sea. They are a dangerous place for any vessel, and NATO countries therefore have a strong interest in ensuring the prompt provision of search and rescue in the event of an accident. For this reason, they will almost certainly continue to notify Canada of the presence of their submarines regardless of whether Canada also operates submarines. In addition, a good argument can be made that the NORAD Agreement, the scope of which was expanded in 2006 to include the sharing of maritime surveillance in the Northwest Passage and elsewhere, encompasses the sharing of information concerning the presence of submarines.[30]

Are submarines needed to gather evidence?

In its 2001 strategy document *Leadmark*, DND stated that submarines "...quite literally have brought a new dimension to such sovereignty activities as fisheries patrols and counter-drug operations, being able to approach violators unobserved."[31] Yet, the contribution of the submarines is limited to gathering evidence, because they are ill-suited for interdicting vessels.

Today, DND cites the example of HMCS *Corner Brook* providing surveillance in US-led narcotics operations as evidence of the submarines' usefulness in thwarting criminal activity, while also suggesting that Canada's submarine capability had a deterrent effect upon Spanish fishing boats during the "Turbot Crisis" of 1995, as well as upon "American fishing boats operating in disputed waters on Georges Bank."[32] Presumably, the deterrence involved the threat of being detected and monitored, rather than of being sunk.

In 2009, J. Matthew Gillis wrote:

> [W]hile submarines have the endurance and sensor radius to patrol the long coasts of Canada, it is questionable whether they are Canada's best patrol assets. [A] CP-140 Aurora [aircraft] can survey twice an SSK's patrol area in a matter of hours. The CP-140's advanced camera suite performs a comparable function to periscope cameras, capturing criminal activity at sea on film. But while submarines do not have the speed of the CP-140s, they have two qualities that CP-140s do not: stealth and endurance. Criminals could hide evidence before an aircraft or ship comes within camera range, but a submarine can loiter indefinitely and undetected. Based on these factors, the constabulary role is a viable one for Canadian submarines.[33]

DND photo IN2013-0376-180

Lieutenant-General Yvan Blondin (right), Commander of the Royal Canadian Air Force.

Today, as a result of technological developments, the surveillance of non-state actors can be done more effectively and efficiently with unmanned aerial vehicles (UAVs or "drones"). Canada already has a "Joint Uninhabited Surveillance and Target Acquisition System" (JUSTAS) program, a long-term strategy to acquire a fleet of UAVs for domestic and international operations. In March 2013, Lieutenant-General Yvan Blondin, the Commander of the Royal Canadian Air Force, told the Senate Committee on National Security and Defence that UAVs are needed because they have "the range and endurance to be able to go on long patrols and be our eyes in the sky in the Arctic."[34] Drones can fly for very long periods of time, with some surveillance models being small and quiet – characteristics that enable them, like submarines, to loiter undetected and thus capture criminal activity on film.

"It is often asserted that Canada's submarines are useful for helping allies train in the detection of relatively quiet diesel-electric vessels."

Are Canadian submarines needed to help the US Navy train?

It is often asserted that Canada's submarines are useful for helping allies train in the detection of relatively quiet diesel-electric vessels. The US Navy, in particular, operates a solely nuclear-powered submarine fleet, and "...recognizes that diesel-electric submarines can pose a serious threat to its surface fleet, especially in littoral operations. Training exercises with foreign diesel-electric vessels are therefore considered of great value in honing the skills of the crews of patrol aircraft and surface ships."[35] DND reports that HMCS *Corner Brook* has received high praise for acting as a simulated enemy in various NATO and Canada-US exercises "...to assist in the training of NATO and US surface and air forces."[36]

However, the United States is capable of finding other diesel-electric submarines with which to train. From 2005–2007, the US Navy leased the HMS *Gotland* and its Swedish crew for use in anti-submarine exercises in the Pacific Ocean.[37] NATO allies France, Germany, and Spain also operated diesel-electric submarines. Moreover, as Gillis points out, "Investing over $900 million in operating four submarines to train foreign navies is a seemingly strange allocation of money for a navy with an already narrow budget."[38]

Does Canada need submarines to maintain expertise?

The final reason often used to justify a continued submarine program, is that Canada would otherwise lose crucial expertise that would be difficult to rebuild if, at some point, a decision was made to reacquire submarines.[39] Of course, the same argument could be made about any military equipment, from cavalry horses to aircraft carriers, both of which Canada's armed forces have operated in the past. Moreover, even the purchase of readily-available, 'off-the-shelf' submarines from France or Germany would entail a multi-year procurement process that would allow time to train experienced surface-vessel officers and crews for a submarine role.

Conclusion

In 1995, the editorial board of the *Globe and Mail* wrote of the proposed acquisition of the *Victoria*-class submarines:

> [I]f submarines are to deter attacks on Canada as part of defending territorial sovereignty; we still do not know whence these attacks will come. The government readily admits the Cold War is over, but still finds enemies on and under the sea. If, indeed, they exist, we can surely rely on the submarine capacity of our NATO allies to cover that particular flank.
>
> … While it is true that submarines are effective in monitoring foreign fleets because they can operate in secrecy, this is using a sledgehammer to crack a peanut. The problem is not so great that planes and satellites can't handle it.
>
> … The economic and military argument for buying submarines now is unconvincing. We cannot afford them and do not appear to need them – however attractive the price.[40]

Today, the same arguments apply: there is no threat of inter-state conflict sufficient to justify Canada investing billions of dollars in a submarine fleet; and the other roles ascribed to submarines, such as surveillance and evidence-gathering, can be more efficiently fulfilled by other technologies.

Denmark has come to the same conclusion. Like Canada, Denmark is a NATO country with substantial maritime zones, largely because of the Faroe Islands and Greenland. Yet in 2006, Denmark decommissioned the last of its German-designed diesel-electric submarines. According to the Danish Ministry of Defence:

> The current security environment, including the enlargement of NATO and the EU, is of such a nature that the conventional military threat to the Danish territory has disappeared for the foreseeable future.[41]

Concurrent with the decommissioning of its submarines, the Danish government increased the size and capability of its surface fleet – including new offshore patrol vessels to provide inspection and fishery protection.

As the Canadian government necessarily embarks upon an evaluation of whether to replace the *Victoria*-class fleet, the Danish approach provides an important model, for none of the arguments previously made in favour of Canada having submarines hold any water today.

CMJ

DND photo ET2011-0158-07 by Master Corporal Daniel Malhotte

HMCS *Corner Brook* leaves CFB Esquimalt to link up with HMCS Algonquin for sea trials, 30 May 2011.

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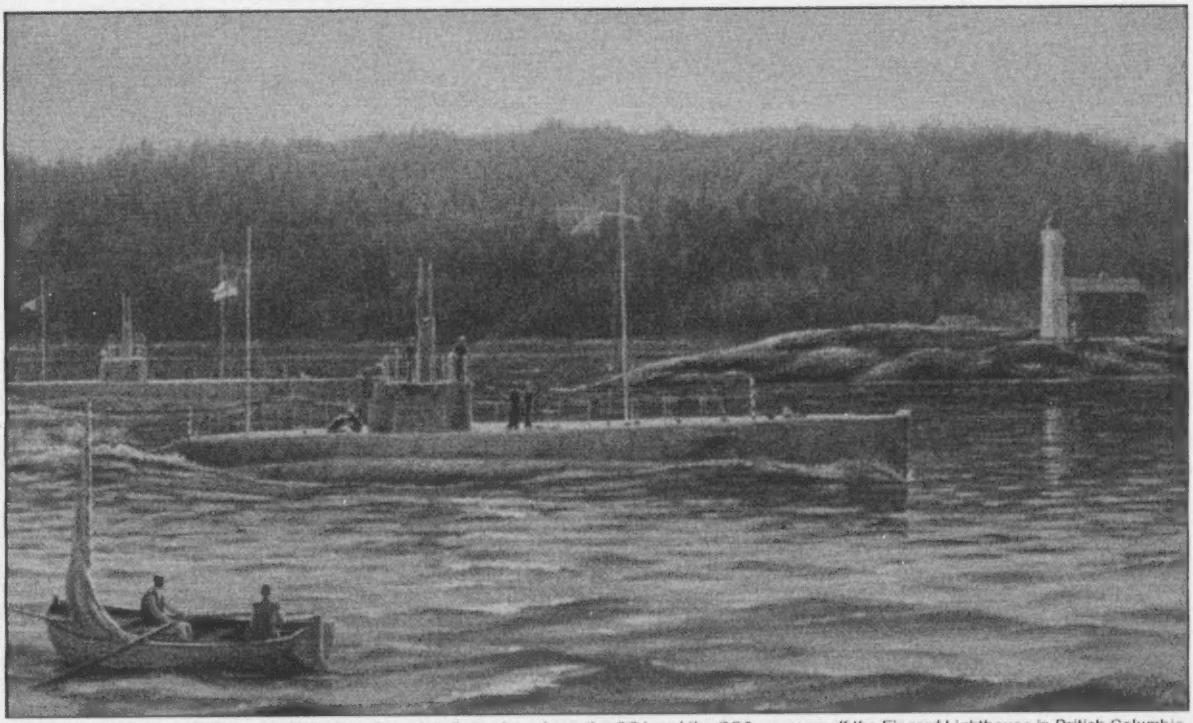


Peter Rindlisbacher and the Canadian Society of Marine Artists

First Ladies at Sunset, by Peter Rindlisbacher. Canada's first submarines, the CC1 and the CC2, as seen off the Fisgard Lighthouse in British Columbia, circa 1914.

The Contribution of Submarines to Canada's Freedom of Action on the World Stage

by Paul T. Mitchell

Paul T. Mitchell *is a Professor in the Department of Defence Studies at the Canadian Forces College.* *He gratefully acknowledges the assistance of Vice-Admiral (RCN Ret'd) Dean McFadden, Commodore (RCN Ret'd) Lawrence Hickey, Commander (RCN) Scott McVicar, and Lieutenant-Commander(RCN) Tony March, as well as other officers who have chosen to remain anonymous. The opinions expressed in this article are those of the author, and do not represent those of the Canadian Forces College or the Department of National Defence. Any errors or omissions are the responsibility of the author alone.*

Introduction

Michael Byers has been a longtime critic of Canadian Defence Policy and of submarines in particular.[1] Thus, it is of no surprise that the answer to his question, "Does Canada Need Submarines?" is no. Early last year, both he and his research partner Stewart Webb released the ironically-titled *That Sinking Feeling: Canada's Submarine Programme Springs a Leak* through the Canadian Centre for

DND photo IS2005-1328 by Sergeant Roxanne Cloutier

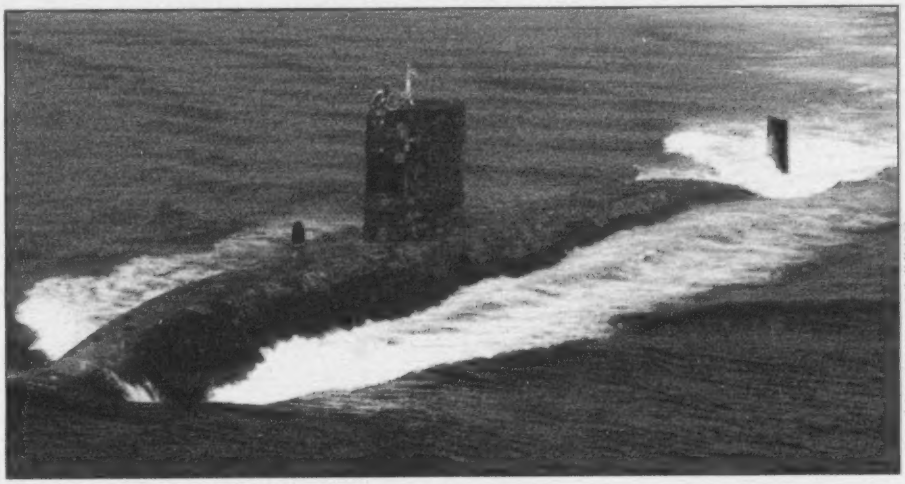
HMCS *Windsor* sails along with HMCS *Montreal* at sunrise, 20 November 2005.

Policy Alternatives, where they made similar arguments.[2] Despite Byers' standing as a leading scholar on Arctic and legal issues, his analysis of the submarine file is considerably flawed, although understandably popular. The recent generator problems experienced by *HMCS Windsor* have once again put the troubled submarine program back into the public spotlight.[3] Many Canadians are outraged by the continuing problems our submarines experience, and naturally question the rationales under which they have been acquired. It almost seems that the image problem the submarine service endures is the biggest threat Canadian submariners confront. The selective nature of this attention must be particularly frustrating, as other accidents and incidents within the Royal Canadian Navy (RCN) fail to attract similar levels of public concern.[4]

In this environment, the more difficult job should be convincing Canadians of the need to invest in a submarine capability for the navy. The real irony is that this debate on Canadian naval capability is so narrowly focused on a single weapon system. The real argument that needs to be made forcefully is that Canada's navy requires a combined arms team that includes a variety of platform types in the air and at sea – such a formation deeply at risk with the obsolescence of our air defence destroyers, and the erosion of at-sea logistic support. Nevertheless, the task at hand today is to argue for the role of submarines in that combined arms team. As such, this article will dispute Byer's principal arguments, and then establish that the strategic capabilities afforded by submarines make them, not only a critical part of that maritime combined arms team, but also among the most cost effective platforms for protecting Canadian interests in a rapidly changing international environment.

Unfit weapon systems?

Byers has argued that planning for the *Victoria* class replacement must soon begin, largely because of poor construction, long storage in salt water during their period of decommission, and due to the subsequent accidents (experienced by *Corner Brook* and *Chicoutimi*).[5] I have rebutted these claims elsewhere,[6] but it bears repeating that the basis upon which Byers makes these assertions is unsupported by any evidence. Indeed, the very sources he uses to establish the supposed deficiencies of the *Victoria's* construction in Britain during the 1990s contradict his own claims.[7] The submarines have developed a reputation as 'lemons' among the Canadian public, largely because of a series of unfortunate incidents. This has been reinforced by the delay in getting the boats operational, an impact that speaks more to stresses stemming from a tight budget for operations and maintenance during a period of wartime operations.[8] The navy also took some risk in acquiring an 'orphan system,' which complicated the establishment of a logistics system to support on-going operations.[9] Again, none of this has anything to do with deficiencies in the construction or design of the boats, and speaks only to the shoestring budget under which the RCN acquired the submarines in the 2000s.



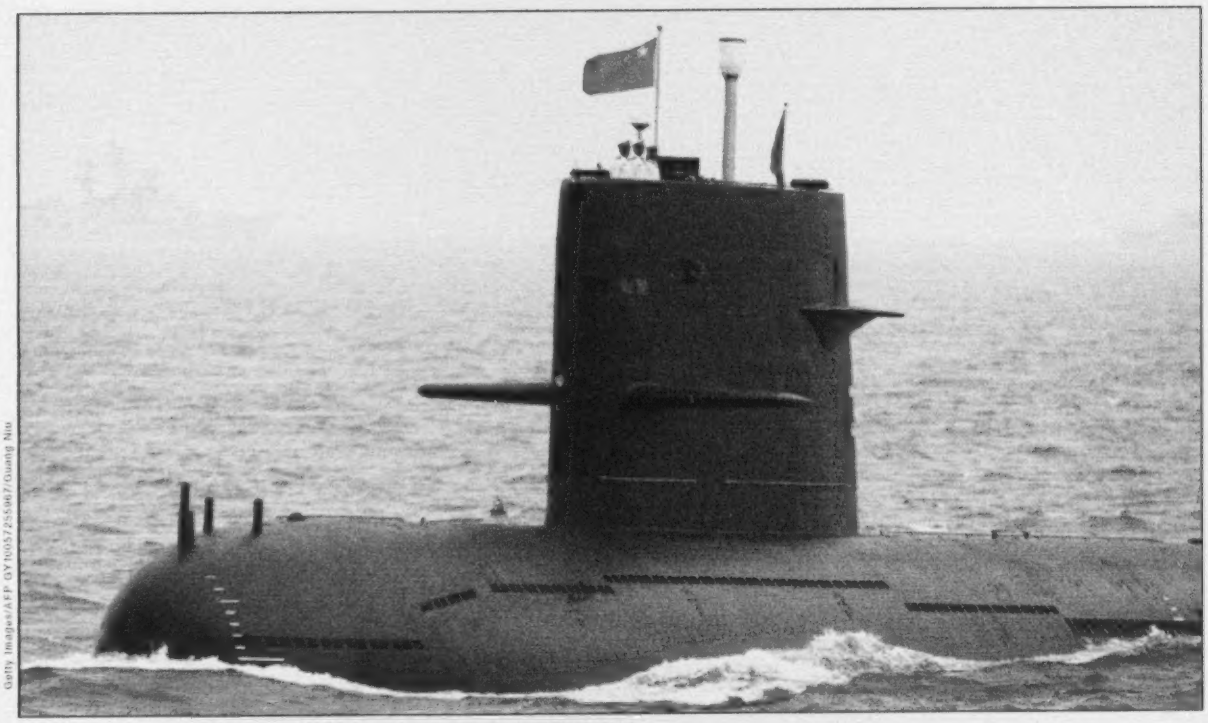
HMS *Tireless*, a *Trafalgar*-class submarine.

Two features explain some of the difficulty Canadian submarines have experienced in their long road to operational status. First is the level of their technical sophistication and the high demand this places upon the professionalism of the submarine's crew. The *Victoria* class submarines are among the quietest submarine systems in the world. They share key technological systems with Britain's *Trafalgar* class nuclear submarines, highly sophisticated and classified features that must be expertly used if they are to be effective. Second, the very environment in which submarines operate also places a premium upon professional excellence. Submarines share more in common with space programs than they do with other naval programs. The unforgiving nature of working at depth is akin to working in the vacuum of space: errors of tactical judgment and operational protocols can be instantly lethal. While safety is always a concern for professional mariners, it assumes an existential priority for submariners. It is for both these reasons that the course for command qualification in submarines is traditionally called 'Perisher.'[10]

These two aspects mean that maintaining an effective operational capability implies significant investments in infrastructure and training regimes to generate effective operational practice (and experience). The length of time the Canadian government took in the decision to acquire the submarines meant that both of these had significantly atrophied in the intervening period. This had to be expensively rebuilt in the last decade, and at the same time significant naval operations were being conducted in support of the War on Terror. This, rather than supposed deficiencies in the design of Canada's submarines, explains their long road to operational capability.

All we need is a war... with China

Byers devotes an extended consideration to the RCN strategic concept called "*Horizons 2050*," which argues, "...we should anticipate the possible re-emergence of inter-state



Getty Images/AFP GYN057255067/Guang Niu

A Chinese Navy submarine attends an international fleet review, 23 April 2009.

maritime armed conflict... including the possibility that certain states will seek to deny others access to their maritime approaches."[11] However, rather than providing direct analysis of the original source, he recycles Elinor Sloan's conclusion that a potential war with China seems to be the principal concern of the document. He sums up with the observation, "...it seems doubtful that speculative security concerns about a country that has been embraced by the Canadian government as central to our trade and foreign policy, can reasonably be used to justify spending billions of dollars on submarines."

Of course, this is only Sloan's *interpretation* of *Horizons 2050*. One might point out that *Horizon 2050's* anti-access discussion is equally applicable to many other powers besides China. Submarines are a growing component of many navies' order of battle. In the last 20 years, almost every significant navy in the Asia Pacific has acquired submarines.[12] Russia continues to operate a sophisticated submarine force, one that has recommenced making regular visits to North American coasts.[13] India has entered the nuclear submarine community,[14] and yes, China's submarine fleet continues to grow.[15] It is not an enormous intellectual stretch to argue, as *Horizon 2050* does, that naval warfare in the 21st Century will "... employ more sophisticated area denial capabilities... using 'high-end' conventional or asymmetric capabilities such as advanced missiles or submarines." If anything, the wide proliferation of submarine systems internationally speaks more to their continuing utility.

> "Allies participating in submarine waterspace management do not specifically reveal where each of their submarines are at any given moment."

Arctic Angst

The acquisition of the *Victorias* from Britain was partly justified on the premise that they could be retro-fitted for Air Independent Propulsion (AIP), making them suitable for under-ice operations in the high Arctic. This has been a capability the RCN has always desired. Admiral Brock's 1961 report on future naval capabilities argued for AIP.[16] An under-ice capability formed the justification for its futile quest to acquire nuclear submarines in the 1980s,[17] and it also has formed the basis for long-term cooperation with the United States Navy (USN) in a series of secret operations conducted by American submarines in the Canadian Arctic throughout the Cold War.[18] As such, Byers suggests that without AIP, unlikely to be procured for the *Victorias* in the current fiscal climate, Canadian submarines are of little value in protecting the Arctic. Furthermore, Byers also points out that submarines add little to Canada's position on the Northwest Passage.

However, it is quite likely that the high Arctic will be increasingly ice-free in the coming decades. Shipping companies are expressing increasing optimism with respect to using polar trade routes to shorten the sailing distances between Asia and Europe, and many companies are eyeing the potential resources that may become exploitable in Arctic waters once year-round ice disappears. Canadians frequently forget that the Arctic is an ocean, one that is about to get considerably busier in the coming decades, and one that is gathering increased attention by many major powers, China and Russia included. The RCN has a real interest in monitoring

DND photo HS2006-0814-01 by Corporal Rod Doucet

HMCS *Corner Brook*, 21 December 2006

www.defenceimages.mod.uk/45152113

HMS *Vanguard* home after a patrol at HM Naval Base Clyde, Faslane, Scotland.

activities in this region, and submarines will play an important role. Even if they remain incapable of extended under ice operations, access to the Arctic is through waters that are largely ice-free, allowing the RCN to conduct barrier patrols of those chokepoints, and enabling Canada greater visibility on the maritime and naval activities taking place in its Arctic waters (a capability that was practiced during recent iterations of Operation *Nanook*).

Intelligence Sharing and other Naval Cooperation

Byers argues that the exclusive submarine forums in which the RCN participates with its closest allies can be preserved in the absence of strict possession of these systems. Of course, this is just his opinion, as no evidence is provided that such arrangements would, in fact, be possible. While he speculates that essentially it would be in the interest of Canada's allies to continue to cooperate due to safety and search and rescue issues, especially in the Arctic, he fails to understand that waterspace management is not about search and rescue, but rather about route deconfliction. Allies participating in submarine waterspace management do not specifically reveal where each of their submarines are at any given moment. Waterspace management is all about the safe operation of submarines among friendly partners to ensure that their submarines do not collide with each other, or are detected as unknown and potentially hostile targets.[19] Remove Canadian submarines from the game, and there is no longer a 'need to know' basis for sharing information.

In terms of their most highly guarded secrets, nations do not operate on the basis of charity. This was made dramatically evident to Canada in 2003 when its decision to abstain from the Iraq invasion caused the momentary loss of *all* military information sharing with the United States.[20] New Zealand still feels the reverberations of its decision to ban US naval vessels from its ports in the 1980s. While the concept of 'need to share' has been in vogue since the events of 9/11, it has never been fully embraced, and information sharing, even in organizations such as NORAD, *where Canadian and American operations are completely integrated and command and control is shared*, remains problematic.[21] Even in terms of waterspace management, not all information is shared among allies, as the collision between *HMS Vanguard* and the French SSBN *Le Triomphant* demonstrates.[22] Further, Canada's decision to eschew offensive cyber capabilities for its armed forces has limited cyber cooperation with 'Four-Eyes' allies. Getting out of the submarine business would most certainly end any role for Canada in allied waterspace management.

Byers also dismisses Canadian naval cooperation with the USN as unnecessary, given that the US could find other NATO partners to conduct ASW training against conventional diesel powered submarines. While this is undoubtedly true, it misses the whole point of why such training is conducted in the first place. The US benefits from training against Canada's conventional submarines, but our navy (and air force) *also* gain significant benefits from these

activities. Canada's navy is rightly regarded as a world class professional force, despite its small size. Such professionalism makes Canadian ships highly desired in multinational formations, and has also allowed the RCN to lead those formations in many instances. International cooperation is a critical aspect of maintaining this level of world class professionalism. Furthermore, given the highly technical nature of submarine operations, working with American units is a key way to ensure that our submarine crews are every bit as good as their colleagues on the surface.

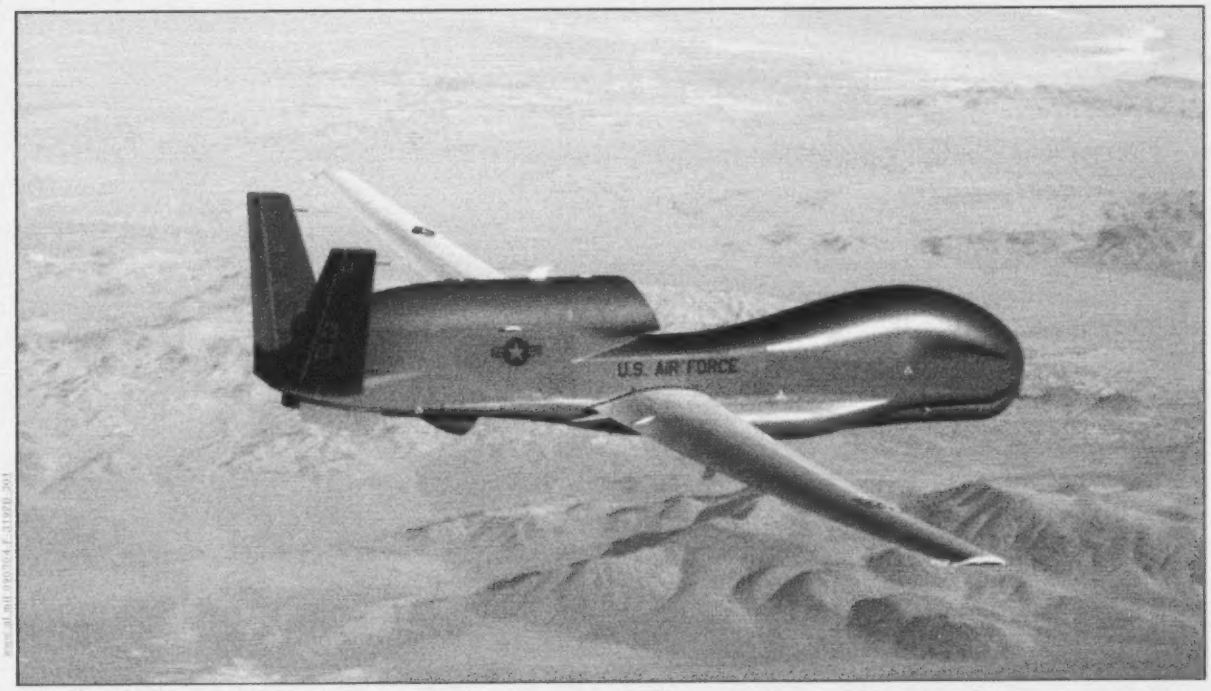
Surveillance and UAVs

Byers argues that "…as a result of technological developments, the surveillance of non-state actors can be done more effectively and efficiently with unmanned aerial vehicles (UAVs or "drones")," pointing to the RCAF's *Justas* program to acquire these types of aircraft. It is true that such aircraft, on a vehicle-by-vehicle comparison, are dramatically less expensive than a submarine, and often less expensive than manned aircraft as well. However, the *Justas* program is nowhere near to fielding an operational capability for the RCAF. Further, with regards to the argument that UAVs can achieve the same effect as submarines, there are significant cost and capability issues that Byers is unaware of, or chooses to ignore.

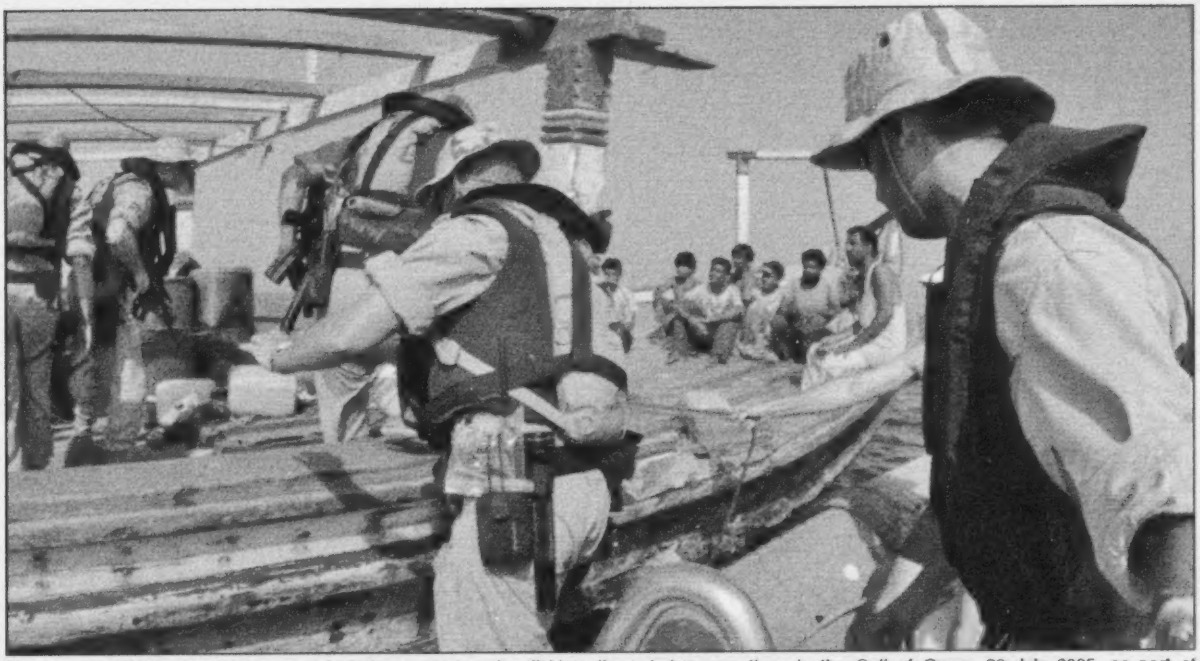
> "As the Royal Navy found out in the Falklands War, modern ASW is far trickier than it has proven to be in past conflicts."

First, maritime surveillance operations are those conducted at a distance, involving areas of thousands of square miles. In order to communicate with and control UAVs at these distances, some form of satellite communications are required. The infrastructure associated with this type of capability is neither easy to acquire, nor cheap. For example, Great Britain's Royal Air Force (RAF) has been operating *Reaper* UAVs in Afghanistan since 2006. However, only recently has the RAF been able to acquire its own command and control systems for its fleet of UAVs. In the meantime, it has had to use USAF facilities at Creech AFB in Nevada.[23] UAVs' dependence upon satellite communications flying such distributed operations will also dramatically reduce their effectiveness in Arctic operations as well: the communication satellites on which the military relies for UAV control are geostationary systems that have little coverage above 60 degrees north. A government proposal exists for a Polar Communication and Weather Mission satellite to support (among other things) high bandwidth communication for the support of UAV operations in the Arctic, but it has not yet been approved. Furthermore, it would require a constellation of satellites in either polar or 'Moliniya' orbits to assure continuous coverage, highlighting again the expensive infrastructure necessary to support this type of technology.[24]

Second, significant modifications to Transport Canada's air safety regulations will have to be made in order to use UAVs in 'unsegregated airspace.' While aircraft above 5000 feet are in controlled airspace, they all operate within a 'seek and avoid' paradigm with respect to other aircraft. With a pilot absent from the aircraft itself, the situational awareness of UAV pilots is significantly restricted. Furthermore, collision avoidance radars continue to experience developmental issues.[25] As such, save for over controlled military ranges, UAVs are currently banned from flying in both domestic and international airspace used by private and commercial aircraft, unless such flights are planned long in advance. Under present flight regulations, UAVs lack sufficient flexibility to conduct surveillance operations for any purpose.[26]



RQ-4 *Global Hawk*



DND photo IS2005-2126a by Sergeant Frank Hulse

Members of HMCS *Winnipeg's* naval boarding party board a fishing dhow during operations in the Gulf of Oman, 30 July 2005, as part of Operation *Altair*.

Last, there are presently few UAVs that are capable of flying in the extreme weather conditions, those which are frequently present in demanding environments off the coasts of Canada.[27] The US Navy has stood up two squadrons of maritime surveillance UAVs because they have undoubted utility, but such systems are not inexpensive. The present system is based on the *Global Hawk* airframe, one of the most expensive UAV systems in operation.[28] In comparison to UAVs, submarines, given their capacity to submerge below extreme sea conditions, can remain effective and on station in the worst weather conditions.

Submarines in the Contemporary Strategic Environment

Despite the continuous barrage of bad press, submarines remain a critical component of maritime capability. As Byers' contributions demonstrate, the debate over them, sadly, remains mired in narrow tactical considerations, rather than considering the broader strategic effects the technology offers. In contrast to the hopes of Byers, the future remains unpredictable, but is unlikely to be orderly. The Western liberal order established at the end of the Second World War is under increasing challenge by a variety of states. While none presently seek to replace it with one of their own, the threat of fragmentation through development of regional spheres of interest is a very real possibility. Russia's recent actions in the Crimea, and growing Chinese assertiveness in both the East and South China Seas, all point towards a world in which international governance may break down considerably; where the rules of the road are set by the brute application of force, rather than accommodation, negotiation, and legal norms. Such a world is clearly not in Canada's interest. The defence of the liberal order, however, may ultimately require the use of force: the failure of it will certainly require it.

With that said, Canada is not powerless in the strategic environment. The Government of Canada has seen fit to deploy its military forces in a variety of operations in support of both the United Nations and NATO since the end of the Cold War. In many of these operations, the geographic areas in which the Canadian Armed Forces (CAF) has taken action could hardly be called 'expected' or foreseeable. As a wealthy developed nation with interests in maintaining the present liberal governance structures of international society, Canada has seen fit to deploy its forces in Kosovo, Afghanistan, and, most recently, Libya, in order to ensure that the values that underlie international society are protected from forces that seek to undermine and replace them with other forms of governance (either locally or globally).

In committing forces to international coalition and alliance operations, Canada has worked to protect (and project) liberal internationalist values, not only from hostile forces, but also to influence its closest allies in terms of the interpretation of those values as they affect the conduct of operations. Working with the United States has been central in all these operations. In the past, Byers has warned against the dangers of operating with the Americans, fearing close interoperability with America could usurp legal Canadian command and control of its own military forces.[29] The experience of the past decade of conflict has demonstrated how unfounded this argument actually is. Rather than being insidiously employed for narrow American interests, a highly professional and interoperable military has, in fact, given the Canadian government the tools to influence the conduct of American operations towards Canadian values. As Commodore (Ret'd) Eric Lerhe has demonstrated, legal officers from the CAF were able to shift American detainee policy away from unilateralist interpretations of the Geneva Conventions and towards a more internationalist interpretation of that code.[30] It is unlikely, without "skin in the game," that such arguments would have been listened to as effectively as they were. The fact that the Canadian Army was engaged in the use of force

in Afghanistan, risking lives and treasure, as well as taking prisoners in its operations, made our arguments for respecting the Geneva Convention so forceful. Furthermore, Canada's naval leadership in the Persian Gulf arguably helped maintain coalition unity in the War on Terror as the United States launched operations in Iraq.[31]

Thus, for a medium power, albeit still far removed from the sources of conflict, maintaining key military capabilities will be increasingly important for preserving Canadian freedom of action to influence this environment. Large military powers, such as the United States, China, and Russia, can afford to experiment with different forms of military structures as well as to endure the operational and fiscal consequences that ensue. The size of their armed forces gives them tremendous reserve capabilities to endure failures. While Canada deployed large, capable military forces in the First and Second World Wars, the cost of reacquiring such capabilities in the present environment would be enormous, and would require significant sacrifices to our existing social spending programs (and probably large tax increases as well). For the foreseeable future, the size of the CAF is unlikely to grow. Canada will have to carefully husband its military power.

Reuters RTR02JS/ Reuters photographer

Argentine Navy light cruiser ARA *General Belgrano*

Thus, the employment of a fully capable navy, including the use of submarines, permits the Government of Canada to exercise both 'hard' and 'soft' power in a significant fashion with its allies, as well as against its enemies. In this, submarines offer tremendous flexibility to the Government of Canada as it determines the range of options it needs to pursue on the uncertain world stage.

We should consider, therefore, the following options that submarines offer to governments. Besides their ominous tactical offensive capabilities, three strategic roles fall naturally to submarines: Strategic Conventional Deterrence, Intelligence Collection, and Operational Support.

Strategic Conventional Deterrence

Submarines are enormously difficult to find at sea. During the Second World War, the huge casualties suffered by German 'wolf packs' were partly caused by the speed of convoys that forced most submarines to attack on the surface, where ships and aircraft could more easily retaliate against them. However, modern submarines are much faster, which gives them the tactical manoeuvrability to attack while submerged.

As the Royal Navy found out in the Falklands War, modern ASW is far trickier than it has proved to be in past conflicts. In 1982, Argentina possessed four submarines of varying capability. However, they effectively possessed a single submarine with which they could conduct offensive operations against the British task force. Facing that single submarine were parts of NATO's North Atlantic ASW group, the ASGRU2, arguably one of the most experienced ASW forces in the world at the time. Despite the ASGRU2's depth of capability, the Argentinians were able to conduct two separate attacks on the British task force, both of which failed, due to technical malfunctions in the Argentinian's torpedoes.[32] Local acoustic conditions, however, rendered British forces helpless: over 150 weapons were released with no hits scored against the Argentinian submarine *San Luis*. According to the captain of the *San Luis*, "...there was no effective counter attack. I don't think that they knew we were there until they heard our torpedoes running." The implication is that every weapon expended in the British ASW effort was against a false target.

Such operational difficulties exert a strong psychological effect on navies. Knowledge of an operational submarine in a particular area will often deter navies from entering the area at all. Following the sinking of the *General Belgrano* by HMS *Conqueror*, the Argentinian navy returned to port. However, such dramatic psychological effects can be created only by effective crews. Recalling the earlier discussion of the operational demands of sophisticated submarines, the Argentinian attack, while frustrating for the British, did not create the same impact as the successful attack by *Conqueror*. The presence of an operational submarine in the area of a naval task group cannot be simply wished away, demanding the huge expenditure of resources by the British. However, Argentinian forces lost the opportunity to deter the United Kingdom because their crew was not sufficiently capable from a technical perspective to prosecute an effective attack: the

A USAF U-2 *Dragon Lady* strategic reconnaissance aircraft at an undisclosed location in Southeast Asia, 22 May 2009.

most experienced Argentinian crewmen were all in Germany at the time of the war, supervising the construction of new submarines. None of the command crew assigned to the *San Luis* had any experience in the Type 209 submarine in which they were sailing. Inexperience led to operational failure.[33]

In a similar fashion to the effect created by *Conqueror*, the knowledge that the Canadian navy had deployed submarines to the Georges Bank in 1995 assisted in managing the crisis between Spain and Canada during the Turbot War.[34]

Intelligence Collection

The same features that enhance conventional deterrence also play an important role in intelligence collection. The ability to cruise undetected close to hostile shores demonstrates the utility of these vessels. During the height of the Cold War, American submarines were able to penetrate the ports of some of the Soviet Union's most sensitive naval installations, conducting signals and electronic intelligence, as well as photographing the undersides of Soviet submarines;[35] a standard to which Canadian crews also train. Aside from such dangerous missions, in other operational contexts, they are also extremely effective assets complementing the intelligence resources available to a naval or a ground force commander. Further, such missions might be able to collect intelligence unavailable by other means, especially the covert collection of signals and electronic intelligence. Opposing forces can avoid or deceive satellite reconnaissance as long as the orbital periods of space assets are known. Long range high altitude aircraft, such as the U-2 and *Global Hawk* UAV, are highly scarce resources which may not be available on short notice. Further, these and other aircraft may be detected, thereby warning the opposition that they are being watched. A submarine's stealth avoids both these problems in maritime areas. No other platform has the ability to covertly track, identify, and monitor vessels in the bad weather conditions that occur frequently off our coasts. "Bottomed" submarines, resting on the sea floor, can conduct long range and long term intelligence operations in strategic waterways with little likelihood of being detected. Canadian submarines have been used for such purposes to monitor American fishing vessels thought to be illegally harvesting fish in Canadian waters,[36] and have supported counter-drug efforts in the Caribbean.[37] Having sovereign control over the collection and analysis of intelligence enhances Canadian decision making, especially during crises.

> "As Yogi Berra famously observed, 'the future ain't what it used to be.'"

Operational Support

Lastly, given the difficulty in finding and communicating with submerged submarines, they are rightly considered solitary weapon systems. However, in some circumstances, they can provide powerful operational support to other military systems. Under good sonar conditions, and when equipped with a towed array, a single submarine is capable of covering 125,000 km^2 over a forty-to-fifty day patrol, whereas a surface task group of five-to-six ships, with a combined helicopter capacity of eight aircraft, has a continuous surveillance coverage of 192,000 km^2 in a 30-day patrol. Thus, considerable resource savings can be had with submarines, especially given that Canada's *Victoria* submarines have a core crew of 48 sailors, whereas a similarly capable naval task group might have as many as 1400 personnel, not to mention the considerable fuel costs of a five-ship formation, compared with that of a single submarine.[38]

Operating in conjunction with maritime patrol aircraft (MPA), submarines are able to assist in controlling enormous areas. Again, the sensors on board these vessels provide useful long-range information; however, the submarine's ability to respond to that information may be limited by speed and safety considerations.

Reuters RTR3QE5D by RIA Novosti

Russia's President Putin and Prime Minister Medvedev watch the Victory Day Parade in Moscow's Red Square, 9 May 2014.

Submarines operating with MPA (or even in the future, organically-deployed UAVs)[39] can pass on their target information, allowing the aircraft to conduct more detailed investigations of contacts that are far removed from the submarine's position. This also has the benefit of allowing the submarine to remain covert. In this, Canadian operations in support of Operation *Caribbe*, as well as Dutch operations in support of the NATO Operation *Ocean Shield*, off the coast of Somalia, are both excellent demonstrations of how submarines can support surface forces.[40]

Conclusion: A Powerful and Economic Military Resource for an Increasingly Risky Strategic Environment

Those arguing that submarines have no use in a Canadian context are thinking in very narrow terms about what types of threats they can imagine, given the current political environment and how military force might be employed by Canada. Unable to envision how the Canadian government might employ the capabilities characteristic to submarines in future operations, they choose to dismiss them as unnecessary. There is a fundamental problem of using such logic to determine Canadian naval requirements. Our military contributions to Canadian security, whether exercised in terms of domestic operations or those in alliance, coalition, or UN operations should be determined by our values and interests, rather than by the availability of specific military capabilities.[41] Those who rely upon the 'capability argument' avoid the difficult question of for what, as a country, we are willing, *and occasionally need*, to fight.

Clearly, as history since 1991 has shown, there are some things that even the most war averse government has deemed necessary to support with military force.[42] What those issues will be in the future is entirely unknowable, just as it was impossible to imagine the high intensity operations conducted by the Canadian Army in Kandahar province in 2006/2007, or the bombing operations undertaken by the RCAF over Libya in 2010. Submarines offer tremendous flexibility with respect to how they can be used. While their acquisition costs are high (and their complex safety requirements make maintenance issues pricey), once acquired, their operational costs can be quite low.

As Yogi Berra famously observed, "the future ain't what it used to be." Russia appears to have made a fundamental determination that it cannot pursue its interests within the present liberal order: under the administration of Vladimir Putin, it will not behave like a 'normal state' for which the West has hoped since the end of the Cold War. China also appears to be indicating that it seeks to challenge liberal norms that underlie international governance, as its actions in both the East and South China seas indicate. It seems unlikely that either state will pose the type of 'full spectrum' threat to international order that both Nazi Germany and the Soviet Union historically represented. Both Russia and China, along with a host of minor military actors such as Iran, North Korea, Venezuela, Syria, and others can easily play the role of "spoilers" in a process some have referred to as "lawfare," eroding the legal rules, norms, and values that help to keep international relations peaceful and restrained.[43]

Canada's regional environment will be locally unaffected by many of these actions, and thus, Canadians have some amount of discretion as to whether they participate in future military operations that seek to support and enforce these liberal norms. Unlike those states immediately threatened by geographic proximity to aggression, Canada can choose to leave the hard work of protecting international society to others. Such a decision, however, would be in keeping with neither our traditions *nor* our interests. As a wealthy Western state, Canada should bear a certain responsibility to protect an international order from which, as a power with limited military means at our immediate disposal, we greatly benefit. It is not in our interests to see that order eroded to the point that instability abroad begins to affect our local peaceful environment. In this effort, submarines can play a critical role for robust military response. Further, despite their recent problematic nature, they can do so in a far more economical and discreet fashion than many other forms of military power. It would be a mistake to conclude otherwise.

CMJ

DND HS2007-G025-006 by Master Corporal Blake Rodgers

HMCS *Corner Brook* on arctic patrol

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36 Sean M. Maloney "Canadian Subs Protect Fisheries," in *Proceedings Magazine*, Vol. 124, No. 3, March 1998, http://www.usni.org/magazines/proceedings/1998-03/canadian-subs-protect-fisheries. See also Commander Laurence M. Hickey, "The Submarine as a Tool of Maritime Enforcement," Integrated Coastal Zone Management, Spring 2000, pp. 117–122.

37 David Pugliese, "Op Caribbe 2013 Wraps Up – *Her Majesty's Canadian Ships Edmonton* and *Yellowknife* And HMC *Submarine Victoria* Complete Deployments In Eastern Pacific Ocean," Ottawa Citizen, 17 December 2013 at http://blogs.ottawacitizen.com/2013/12/17/op-caribbe-2013-wraps-up-her-majestys-canadian-ships-edmonton-and-yellowknife-hmc-submarine-victoria-complete-deployments-in-eastern-pacific-ocean/.

38 Canadian submarines frequently sail with a crew complement in excess of fifty sailors. Commander Michael Craven observes: "By way of example, the steady-state cost of ownership of the four-boat *Victoria* fleet is estimated at about $C250 million per year, with an 'all up' personnel requirement, including support staff ashore, of less than 500 people. Comparatively, a non-nuclear submarine costs some 30 percent less than a frigate or destroyer to keep at sea on a daily basis, in part the consequence of smaller crew and greater fuel economy." Commander Michael Craven (RCN), "A Rationality Choice Revisited: Submarine Capability in a Transformational Era," in *Canadian Military Review*, Vol. 7, No. 4, 2008, at http://www.journal.forces.gc.ca/vo7/no4/craven-eng.asp.

39 Owen R. Cote Jr. "Submarines in the Air-Sea Battle," in *MIT Security Studies Program Working Paper*, 2010, at http://web.mit.edu/ssp/publications/conf_reports/3coteorPAD3.pdf.

40 "Dutch submarine to help NATO combat piracy off Somali coast," in *NATO News*, 28 June 2010, at http://www.nato.int/cps/en/natolive/news_64706.htm.

41 James Fergusson, "The right debate: Airpower, the future of war, Canadian strategic interests, and the JSF decision," in *Canadian Foreign Policy Journal*, Vol. 13, No. 3, 2011, p. 214.

42 Joseph Jockel and Joel Sokolsky, "Lloyd Axworthy's Legacy: Human Security and the Rescue of Canadian Defence Policy," in *International Journal*, Vol. 56, No. 1, Winter 2000.

43 Colonel Charles J. Dunlap, Jr. (USAF), "Law and Military Interventions: Preserving Humanitarian Values in 21st Century Conflicts," at http://people.duke.edu/~pfeaver/dunlap.pdf; Speech Delivered by Brooke Goldstein, "Lawfare: Real Threat or Illusion," at http://www.thelawfareproject.org/Articles-by-LP-Staff/lawfare-real-threat-or-illusion.html.

Reuters REXFEATURES by Nir Elias

People's Liberation Army (PLA) tanks rumble through Tiananmen Square in Beijing to mark the 60th anniversary of the founding of the People's Republic of China, 1 October 2009.

The Past, Present and Future of Chinese Cyber Operations

by Jonathan Racicot

Captain Jonathan Racicot *is currently posted to the Canadian Forces Intelligence Command, and he has been following events in the cyber environment for years. He obtained his bachelor degree in Computer Science from the University of Montreal in 2006, and then joined the Canadian Armed Forces in 2007 as a Signals Officer. He currently specializes in keeping track of Advanced Persistent Threats, as well as pursuing additional research on Computer Security and Computer Network Operations in his free time.*

Introduction

An unprecedented flurry of intelligence reports by private security firms are homing in on the cyber domain, seizing the opportunity to illuminate cyberspace as an emerging priority for defence interests. Cyberspace, as the fifth battlespace, however, is not new. What makes cybersecurity particularly challenging in a modern context is that it is often misunderstood and prone to sensationalism.

China, as one of many alleged actors on the frontier of cyber espionage, is best understood by briefly examining the past century, how it influences contemporary cyber operations attributed to Chinese-based actors, and how they could be used against the CAF in a potential Southeast Asian conflict.

On 29 March 2009, *The New York Times* reported that a wide-scale espionage network had been discovered by researchers from two Canadian cybersecurity entities: the SecDev Group and Citizen Lab at the University of Toronto.[1] Labeling it the GhostNet, researchers had shed light on a network of 1295 compromised computers in 103 countries. Most of the infected machines were located in the office of the Dalai Lama, and in economic and diplomatic offices for various Southeast Asian governments.[2] Although not the first alleged Chinese cyber espionage campaign to be reported, GhostNet was one of the largest and most intrusive espionage networks known at the time. Within this environment, Chinese actors are the most active and persistent in conducting cyber espionage for economic purposes. Along with Russian actors,[3] they cost the US economy up to $USD 300 billion a year.[4]

The Past

Even in this day and age, the First Opium War of 1839, which pitted the British and Chinese empires against each other, still represents the key event of modern China, the event

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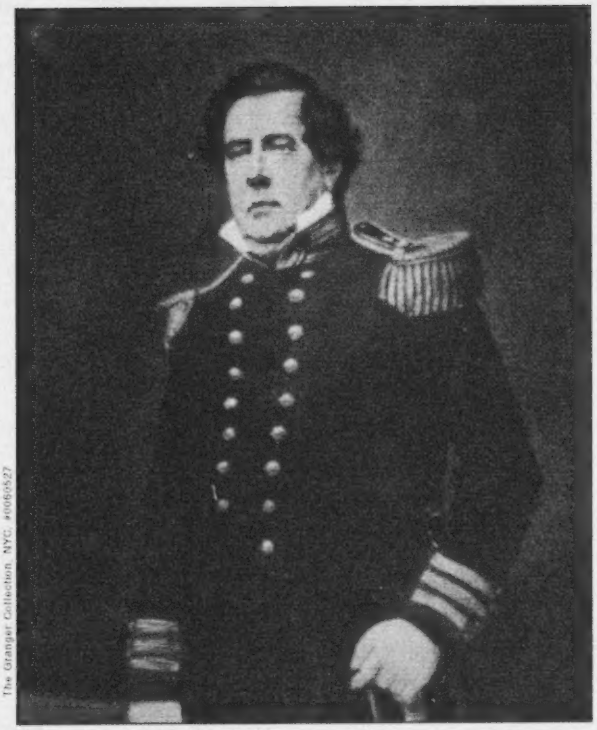
The technologically-superior iron steam ship *Nemesis* of the East Indian Company destroying Chinese war junks in Anson's Bay, 7 January 1841.

which marked the beginning of its "Century of Humiliation," and modeled Chinese interaction with the West for years to come. Under the rule of the Qing dynasty, the empire was compelled, not just once, but twice into agreeing to the terms of the "unequal treaties," which would cede control of Hong Kong to Britain and force the opening of additional ports for trade, including the ravaging commerce of opium.[5] Despite outrageous and optimistic claims of imminent victory in their correspondence with the emperor, the Qing officials knew very well that British ships and cannons were far superior to their own, that they were also hampered by an ad-hoc, undisciplined military,[6] and defended by decaying fortresses.[7] Additionally, accustomed to fighting pirates off the coast, they lacked any 'blue sea' war fighting capability.[8] In other words, the Chinese were facing an adversary with a superior technology. This was further reinforced with the arrival of the *Nemesis*, the first all-iron ocean ship, whose destructive power during an encounter in Chuenpee astonished the Chinese, who fled their junks with shock and awe.[9]

By the end of the Second Opium War in 1860, Qing China had learned the harsh consequences of complaisance. So convinced of the superiority of Chinese civilization compared to the one of the "foreign barbarians,"[10] it had isolated itself and failed to establish scientific and technical exchanges with the rest of the world, thus creating a technology lapse for which they paid dearly.

During the same period, neighboring Japan was stunned by the arrival of the large modern warships of American Commodore Matthew C. Perry. Seeing the looming threat of Western colonial powers, the Meiji Emperor of Japan quickly decided to modernize, integrating Western technologies, and political and economic systems within their own society. Known as the Meiji Restoration, Japan went from a feudal society to an industrial society between 1868 and 1912, modernizing every aspect of its society, including its military. This aggressive modernization would prove highly successful for the Japanese. In 1895, their Imperial Army would force the Qing Dynasty to sign the Treaty of Shimonoseki. This treaty and its contents would have a profound effect upon the Chinese population. For two millennia, China had visualized itself as the universal empire, to which all uncivilized non-Chinese neighbors owed tribute to the Son of Heaven, i.e., the Chinese Emperor.[11] As such, Japan, seen as a cultural tributary by the Chinese, would shock the population even more than the British insult of 1860, which later resulted in the Boxer Rebellion. Amongst others, the Japanese victory was credited to the modernization and aggressive industrialization achieved by adopting Western ideas and technology.[12] These reforms would also pay off in the unexpected Japanese victory in the Russo-Japanese War of 1904 and the Japanese invasion of Manchuria in 1937. Chinese defeats by external threats were caused by numerous factors, but a key determinant was the superior technological and logistical capability of foreign military forces.


The Granger Collection, NYC. #0069527

Commodore Matthew Perry, USN

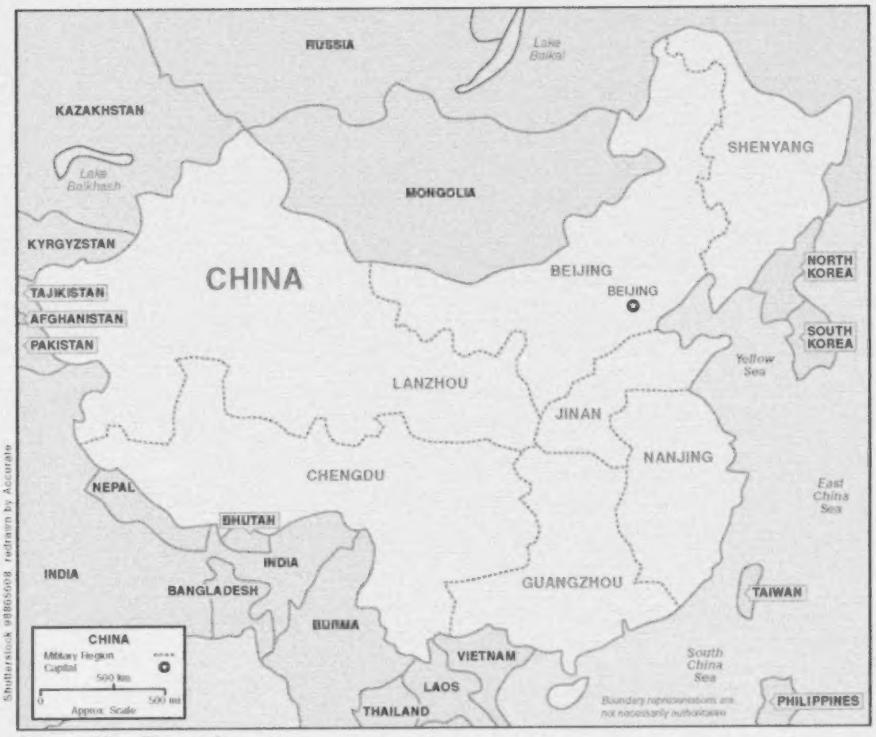
Following the devastating effects of the Second World War, Mao's Cultural Revolution did nothing to improve the rate of modernization of Chinese society. However, it introduced a concept that would influence modern Chinese military thinkers with regard to the development of information warfare: the People's War. Although originally defined by Mao as a way to entrap Nationalist troops, the concepts of using the masses, inferior technology to subdue technologically superior adversaries, and the involvement of the entire society in conflicts,[13] would be found compatible with the development of information warfare. When Deng inherited the head of the People's Republic of China, the country was on its way to collapse. 34 percent of the population had nothing more than a primary education, 28 percent were illiterate or semi-illiterate, and a mere 0.87 percent had acquired a college education.[14] Estimating that China lagged 20 years behind the developed countries, it came as no surprise that Deng passionately called for the modernization of Chinese society, based upon the Meiji Restoration:[15]

> *The key to achieving modernization is the development of science and technology. And unless we pay special attention to education, it will be impossible to develop science and technology. [...]As early as the Meiji Restoration, the Japanese began to expend a great deal of effort on science, technology and education. The Meiji Restoration was a kind of modernization drive undertaken by the emerging Japanese bourgeoisie. [...] In the army as well, it is necessary to encourage scientific research and education at the same time. Without knowledge of modern warfare, how can we fight a modern war? Leading army cadres should become knowledgeable and respect knowledge. We should establish schools at various levels to enable leading army cadres to master modern science, culture and modern warfare in the course of training.*

In 1978, a year after the preceding speech, 433 Chinese students would be sent to study in the United States. Various disciplines, such as physics, radio-electronics, computer science, and engineering were identified as the top four programs, accounting for 35 percent of the delegation.[16] In 1986, Deng launched the 863 and Super 863 programs, major efforts to accelerate the legal and illegal acquisition of technologies, including strategic military technologies such as laser, information technology (IT), dual-use technologies, and energy.[17] The push from Deng, chair of the Central Military Committee (CMC), to modernize echoed into the People's Liberation Army (PLA) and primarily affected the PLA Navy (PLAN) and PLA Air Force (PLAAF).[18] On an interesting note, back in the 1980s and 1990s, it was estimated that the PLA had interests in between 10,000 and 50,000 state-owned industries[19] responsible for both civilian and military production, while providing a significant source of revenue and thus creating a major military-industrial complex. The reforms to transfer ownership of these companies from the PLA to commercial entities eventually spanned private industries founded by ex-military members, Huawei Technologies Company Limited being a pre-eminent example.[20] By the end of 1998, it was estimated that approximately 2000 to 3000 enterprises remained linked to the PLA.[21] It is, however, very likely that strong relationships between the PLA and the industry at large remain as the concept of People's War and "Unrestricted Warfare," are believed to be alive and prospering nowadays. While the People's War defined war as a struggle between nations rather than militaries, "Unrestricted Warfare" defines the utilization of every aspect of society, such as the economy, communications, industry, diplomacy, and so on, to be required in a conflict with a stronger power.[22] The concept also emphasizes "Network Warfare," which proposes the idea of attacking the critical infrastructure of a superior adversary to cripple its economy, industry, and communications.

It is therefore not surprising that the concepts of a 'high-tech war' and of 'information warfare' provoked interest within the senior leadership of the PLA. As the Gulf War raged on and then the Bosnian conflicts emerged, so did the concept of Network Centric Warfare. Rightfully or not, the PLA were convinced that the Americans used computer viruses and network attacks against the Iraqis' networks, and they viewed it as a confirmation of the importance of developing information warfare capabilities.[23] As weapon systems and command and control networks were being "informationized" – the Chinese concept for Network-Centric Warfare – networks represented for the PLA's 'brass' the *Shashou Jian* (Assassin's Mace), that is, the capacity to deal a decisive blow to a superior enemy using inferior weapons, in line with Mao's concept of the People's War.[24]

If the past is any indication of the present, and it usually is, China has learned the pitfalls of being technologically inferior to its neighbors. Within a century, its own fall from being the Celestial Empire to a third world country at the hands of foreign powers is not forgotten. Using concepts from the People's War and the reforms already underway, China is now using cyber operations to modernize its society by acquiring intellectual property and other relevant intelligence with the goal of obtaining information dominance.



China and its military regions

The Present

At the beginning of the millennium, the dialogue with respect to about information warfare appeared abundantly in the PLA's literature,[25,26] and information warfare was most certainly taken seriously at higher levels. As of 2011, it was estimated that the PLA had integrated multiple technical reconnaissance bureaus (TRB) across the various elements of the PLA, including the PLAN and the PLAAF. The 3rd Department (3PLA), responsible for SIGINT, is believed to host a total force of 130,000 members, working in 12 TRBs and three research institutes.[27] According to the Project 2049 Institute, the roles and responsibilities of these 12 TRBs are as follows:[28]

- 1st TRB (Unit 61786), located in Beijing and overseeing 12 offices across China, is believed to be involved in cryptography, and is the only military organization involved in the 863 program. It also maintains close ties with the Sichuan University's Information Security and Network Attack and Defense Laboratory, as well as hosting the 57th Research Institute and the Chengdu Military Region 1st TRB.
- 2nd TRB (Unit 61398) is believed to be mostly interested in targeting technological, scientific, economic, and commercial and military intelligence elements in the English-speaking countries, including the United States and Canada. It is worthwhile mentioning that Unit 61398 was exposed in February 2013 by *Mandiant*,[29] wherein it was reported that the unit may have compromised up to 141 companies spanning 20 major industries, using well-defined standard operating procedures (SOPs) to 'steal' a large amount of intellectual property. On average, cyber operators from the 2nd TRB were able to maintain access to networks for a full year, with the longest compromise lasting four years without being detected. The span of their command and control infrastructure encompassed between 850 and 1000 machines located in 13 countries.
- 3rd TRB (Unit 61785) seems to focus upon wireless communications. It would also appear that members of the Third Division have carried out joint studies with Shanghai Jiaotong University's Department of Computer Science and Engineering, and have conducted research on cyber warfare and vulnerability assessments in Android devices.[30]
- 4th TRB (Unit 61419) is concerned with targets in Japan and Korea, and possibly other South Asian countries.
- 5th TRB (Unit 61565) maintains multiple parabolic dishes on its rooftop, and is assessed as collecting against Russia.
- 6th TRB (Unit 61726) may be interested in Taiwan and Southeast Asian nations, such as Thailand, Vietnam, and Singapore.
- 7th TRB (Unit 61580) may be involved in research with regard to computer network attacks (CNA) and computer network defence (CND).
- 8th TRB (Unit 61046) employs linguists knowledgeable with respect to languages spoken in Europe, the Middle East, and Latin America. It is possible that the 8th TRB is involved in Africa as well.
- The 9th TRB may be the strategic intelligence TRB, as well as having responsibility for maintaining the databases needed by other TRBs.
- 10th TRB (Unit 61886) is believed to be invested with the Central Asian or Russian mission, possibly focusing upon telemetry and missile tracking and/or nuclear testing.
- 11th TRB (Unit 61672) may be related to Russia. It is unknown in what way the mission of the 11th TRB would differ from the mission of the 5th TRB.
- 12th TRB (Unit 61486) seems to be related to SIGINT and space technologies, including satellites and interception of satellite communications.

Additionally, each of the seven Military Regions (MR) oversees their own TRBs with guidance from the 3PLA. From the initial twelve military regions in 1954, the number was reduced to seven by 1988. Hence, some regions now have two TRBs:

- Beijing Military Region (Unit 66407): This TRB may have a mission revolving around Russia and Mongolia.

- Chengdu Military Region (Units 78006 and 78020): this TRB is suspected of being involved in computer network exploitation (CNE) operations, and may target English-speaking countries. Given its location, it is probable that it is involved in Southeastern Asian countries as well.
- Guangzhou Military Region (Unit 75770): probably involved in cyber operations as well as being noted for studying viruses and malware, in addition to working on Internet telephony surveillance.
- Jinan Military Region (Unit 72959): has been reported as employing 670 technical specialists as well as Korean, Japanese, and English linguists, possibly indicating a focus on countries within the Pacific area.
- Lanzhou Military Region (Units 68002 and 69010): oversees two TRBs, one of which may play a key role in SIGINT, and it has offices located around Central Asia.
- Nanjing Military Region (Units 73610 and 73630): the Nanjing TRBs may focus their interests toward Taiwan and the United States.
- Shenyang Military Region (Unit 65016): appears to target Russia, Korea and Japan.

Both the Navy and Air Force elements have their own TRBs, as does the Second Artillery. The PLAAF is believed to host three TRBs:

- 1st TRB (Unit 95830) manages an underground network operation centre, as well as a network of direction finding sites for air defence in eastern and northeastern China.
- The 2nd TRB oversees a network of collection and direction finding sites along the coast in Fujian and Guangdong. Presumably, their mission consists of the monitoring of Taiwan's Air Force (ROCAF) communications networks.
- Finally, the 3rd TRB most likely monitors air activity and air defence communication networks along China's south-western, western, and northwestern borders.

For its part, the PLAN is known to oversee two TRBs, one headquartered in Beijing under the Unit designator 91746. Since the PLAN operates three fleets (North Sea, East Sea, and South Sea), it may not be farfetched to believe a 3rd TRB exists, but this is unconfirmed at this time.

Although not identified within the report, some or all of the PLAN and PLAAF TRB are likely involved in cyber operations, focusing upon acquiring intellectual property, and military and diplomatic intelligence related to their particular element. This assumption is reinforced by the priority placed upon modernizing the navy and the air force.

4PLA is also researching and developing computer network attack (CNA) techniques, tactics, and procedures (TTPs). It maintains oversight of the PLA Electronic Engineering Academy, as well as the 54th Research Institute, which, in turn, has ties with industry.

Other government and commercial entities are also taking part in CNE operations. The Ministry of State Security (MSS), the foreign intelligence agency of the PRC, is very likely a potential source of cyber operations with mandates other than the PLA. Some of their resources are likely focused upon monitoring the "five poisons," which include the Uyghurs, Tibetans, Falun Gong followers, democracy advocates, and promoters of an independent Taiwan.[31] The need for modernization has also inspired a new industry of private security contractors which will conduct cyber operations, develop weapons, or run an intelligence-for-profit model.[32] All these organizations are recruiting students who have gone through a Ministry of Education program that teaches both defensive and offensive operations such as 'spear-phishing,' – targeted e-mails containing a disguised malicious attachment or link – malware, attacks against web servers, and password cracking.[33] The effort to use information technology as the main impetus toward modernization has involved practically all components of Chinese society.

Estimated Starting Year of Suspected China Major Cyber Espionage Operations			
Actor/Operation	Year	Targeted Countries, Regions	Targeted Sectors
Nortel	2000	Canada	Information Technology
Titan Rain[36]	2002	United States	Defense, Space
Net Traveler[37]	2004	Mongolia, Russia, India	Diplomacy, Government
APT1[38]	2006	United States	Information Technology, Aerospace, Government
Gh0st	2007	Vietnam, United States, China	Diplomacy, Government, NGO
Operation Aurora[39]	2009	United States	Information Technology, Defense
Elderwood[40]	2009	United States, Canada	Defense, Shipping, Aeronautics
Night Dragon[41]	2009	United States, Kazakhstan, Taiwan	Energy
Ke3chang[42]	2010	Europe, G20	Diplomacy, Aerospace, Defense, Energy, Government
Government of Canada[43]	2011	Canada	Government, Defense
Nitro[44]	2011	United States, Bangladesh, U.K	Chemical
Hidden Lynx[45]	2011	United States, Taiwan	Finance, Education, Government
Icefog[46]	2011	South Korea, Japan	N/A

Table 1 – List of major cyber operations attributed to China-based threat actors, including estimated started year, top targeted countries and most frequently targeted sectors.

Estimated Cost of Conducting a 12-month Spear-Phishing Campaign by a Section ($USD)					
Category	Item	Quantity	Low	High	Average
Personnel	Officers	1	6,000	10,800	8,400
	Enlisted	5	9,600	24,000	16,800
Infrastructure	Domains	12	0	191.88	95.94
	Server	1	0	599.88	299.94
	Network	1	0	39.99	19.995
	Internet Connectivity	1	120	240	180
Tools and Weapons	Zero-day Exploit	1	50,000	100,000	75,000
	Remote Access Tool	1	0	120,000	60,000
Hardware	Workstations	6	1,200	7,200	4,200
Total			66,920	263,072	164,996

Table 2 - Estimated cost of a 12-months spear-phishing campaign using a zero-day exploit by a CNO section.

Operations

Given the requirement from the highest political circle to modernize, combined with the imposing military structure built for information warfare, it comes as no surprise that the bulk of cyber operations conducted by the Chinese nowadays are actually cyber espionage missions, mostly against defence industries, but also aimed at economic and political targets. The earliest known Canadian compromise dates from 2000, at which time Chinese hackers were believed to have infiltrated the networks of Nortel. The compromise persisted until the bankruptcy of Nortel in 2009, and it is widely believed to be a major cause of the demise of the company.[34] This breach was also the first in a long line of cyber espionage operations that are ongoing today.[35]

Table 1 chronicles the events of importance which have been linked to China. Other events less reported have also surfaced, such as the compromise of Canadian energy company Telvent,[47] and many others targeting Taiwan.[48]

Attribution of offensive cyber operations remains problematic in this battlespace, as CNE operators often utilize intermediate attack points to obfuscate their origin. For attacks that link back to China, it is possible that computers located in China were used as proxies. This plausible deniability makes cyber operations low risk compared to other forms of espionage, and it explains why cyberspace is increasingly used as a means to collect valuable information by governments.

"Attribution of offensive cyber operations remains problematic in this battlespace, as CNE operators often utilize intermediate attack points to obfuscate their origin."

Another complication for assigning attribution with confidence is that the location of a detected compromise is based upon the Internet Protocol Address (IP) of the machine – a number used to identify machines on the Internet; somewhat similar to a postal address – contacting the command and control server. The target may actually be owned by another country. For example, in many cases, targets in China are actually embassies of foreign countries, rather than Chinese-owned assets. Also, some of the items listed in Table 1 are *named operations* versus *named actors*, and cannot be linked to a physical unit solely on their target.

Finally, attribution may be difficult, since Chinese cyber espionage tactics are becoming well-known. As a consequence, criminal actors and other nation states may use similar techniques that give the false impression that an attack originated from China. The adversary's motivation is recognized as a hallmark of the intelligence function, whereby attribution can be unmasked by recognizing patterns and a known need to fulfill specific intelligence gaps that are consistent with long-term political and economic goals.

All the operations noted above used 'spear-phishing' as their preferred delivery method. This technique has been used successfully for the past few years, since it exploits the weakest link of networks: the users. Additionally, given its low cost and the value of the data stolen, this TTP likely provides an excellent return on investment. A single spear-phishing operation roughly costs between $CAD71,211.00 and $CAD279,944.00 per year, depending upon the sophistication of the operation. In Table 2, we have included a simple estimate of a 12-month spear-phishing campaign by a single adversarial section. The lowest cost includes the usage of free services and Remote Access Tools (RATs). For the highest cost, we assume the usage of civilian commercial services and criminal services. In both cases, we include the cost of one zero-day exploit – an unknown vulnerability in applications that lead to compromise – for Microsoft Office. Note that adversaries do not always use zero-day exploits, and this decreases the cost of the campaign even further.

The PLA does not disclose the pay scale of its members. Based upon open source reporting,[49] we approximated the salaries, but can safely assume that they are lower than the salaries of equivalent ranks in the CAF. Many of the required tools and weapons, such as the *Poison Ivy* RAT, are freely available on the Internet. Other weapons, such as the *Cool Exploit* kit, can cost up to $USD 10,000.00/month. Zero-day exploits are the most expensive

Reuters RTXP5E9 by China Daily Information Corporation [CDIC]

Tracked carriage motor howitzers take part in a military parade in central Beijing.

items, and costs vary from $USD 5000.00 to $USD 250,000.00, depending upon the vulnerable system.[50] On average, a zero-day exploit can last for 312 days,[51] before being patched and rendered useless to an adversary.

Yet, using these simple, low cost TTPs, an adversary can steal intellectual property valued at millions, and can severely damage the economy of a home country. Additionally, the theft of military technologies greatly reduces the technological advantage of modern militaries, an aspect that China likely remembers clearly and does not wish to be reproduced in the future if it wishes to assert regional dominance.

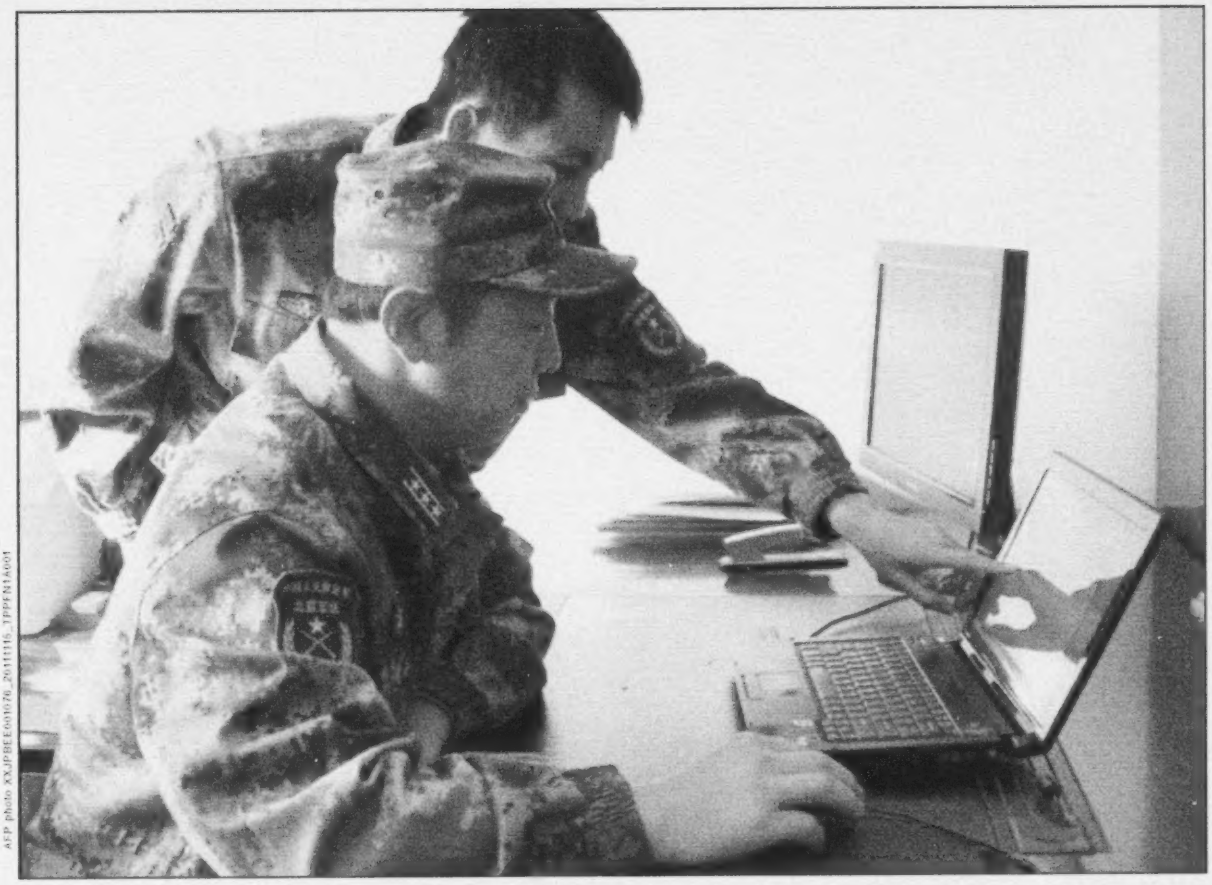
One indirect consequence of these activities is that it forces corporations, as well as government departments, to implement costly cyber defences. Calculating the costs of defending a network is tricky. While equipment can last for multiple years, it requires annual maintenance and support contracts. Based upon the pay scale of the Canadian Armed Forces, a section of one captain and five corporals at the lowest level of pay, estimated collectively at $CAD357, 264.00,[52] would still be more expensive than a year-long spear-phishing campaign. The Canadian Forces Network Operations Centre (CFNOC) spent approximately $CAD1,120,000.00 during fiscal year 2012-2013 for surveillance activities of CAF networks. In cyber operations, as in most kinetic operations, the advantage is owned by the attacker.

> "Although cyber espionage is certainly a priority for China, it doesn't discount other possible targets."

Although cyber espionage is certainly a priority for China, it does not discount other possible targets. These include Supervisory Control and Data Acquisition Systems (SCADA), systems managing critical infrastructure, such as water pumps, thermal plants, electric grid, and so on. A *Trend Micro* analysis observed activity against a decoy water pump system between 2012 and 2013. The results indicated that 58 percent of the attacks came from Russia. However, 56 percent of the critical attacks against the decoy originated from within China.[53] In one instance, tactics similar to the one used by APT1 were observed. Sensitive files were exfiltrated, and access was maintained periodically, but no action was taken on the decoy water pump. This single instance is far from being sufficient to indicate a trend. However, should China want to gain an advantage on a superior adversary, it would likely seek to disrupt critical infrastructure and communications as a 'first strike' approach to gain information dominance.[54] PLA elements would therefore seek to gain and maintain persistent access to these systems until a disruption/denial operation is needed.

Given the low cost and low risk of conducting cyber operations versus the high cost of cyber defences and the supporting bureaucracy, one can safely assume that Chinese cyber espionage will continue until either one of these conditions is fulfilled:

1) the cost of conducting cyber operations will be greater than the cost for defences;



AFP photo XXJPBE600676 20111115 JPPN1A001

2) the risk of conducting cyber operations will be too high; or

3) China attains a close scientific, technological and military parity with the West.

The Future

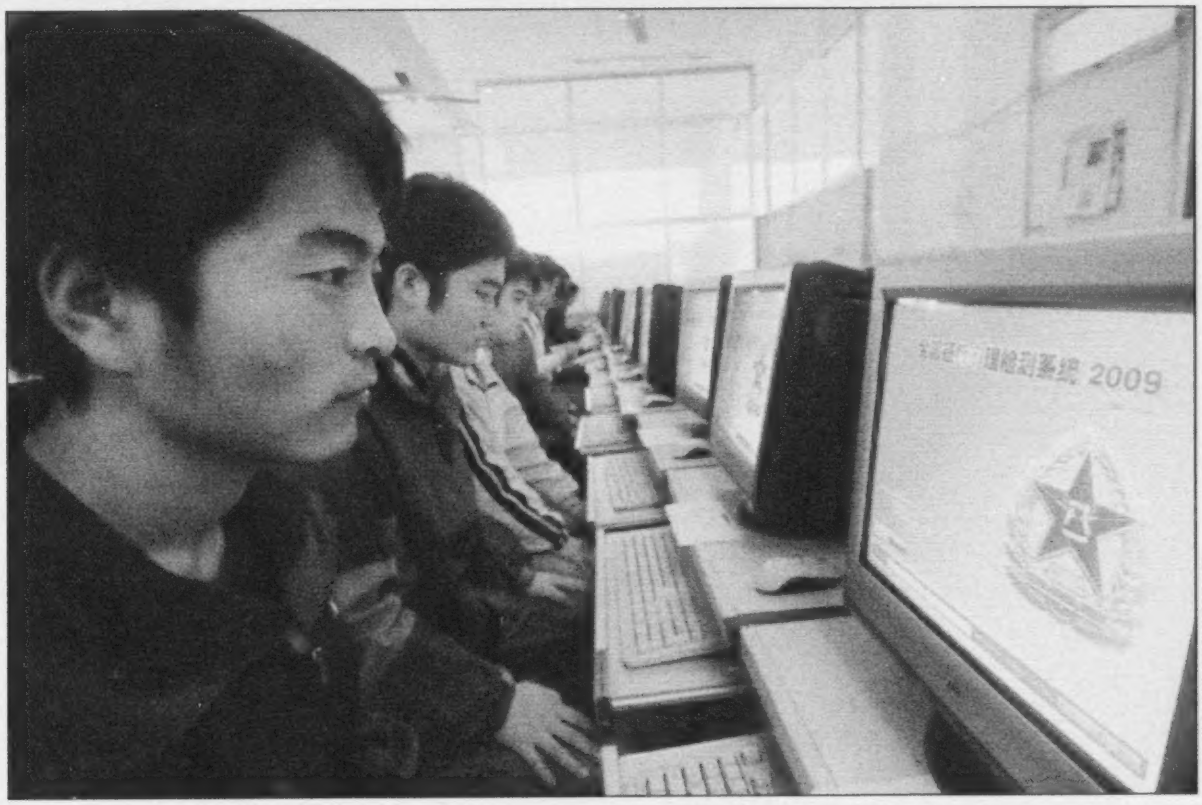
Given the low cost of manufacturing IT equipment in China, and the low wages of PLA members, costs of cyber operations are likely to remain low versus costs for defences. Additionally, as demand for network defences increases, Western companies are very unlikely to reduce the price of their solutions. As for risk, since attribution is difficult, especially for companies, little-to-no international law on cyber warfare exists and the benefits are high, the risk will remain relatively low for at least the next three-to-five years. Finally, China remains unable to match the United States military despite rapid Chinese modernization. However, should a regional conflict such as a territorial dispute with neighboring countries emerge, it may become tempting to leverage computer network attacks (CNA) as force projection.

The PLA sees computer network operations (CNO) as first-strike operations in order to seize 'information dominance' to disrupt critical infrastructure and C4ISR systems. As such, as of 2005, the PLA has integrated both *cyber defensive* and *cyber offensive* operations to achieve information dominance in their military exercises.[55] In 2013, the Chinese Ministry of National Defense reiterated their usage of information systems as a main enabler in order to win local wars;

> *China's armed forces firmly base their military preparedness on winning local wars under the conditions of informationization, make overall and coordinated plans to promote military preparedness in all strategic directions, intensify the joint employment of different services and arms, and enhance warfighting capabilities based on information systems.*[56]

Based upon this information, we can assume that until China considers itself to be competitive with the US military, it will focus upon winning local wars. At the moment, China is embroiled in multiple territorial and sovereignty conflicts within the South China Sea, such as the Senkaku/Diaoyu islands with Japan, and the Spratleys Islands with the Philippines. It also maintains its assertion over Taiwan, which it considers to be part of Chinese territory. Many of these conflicts have escalated in the past year, especially with Japan, as China decided to unilaterally include the islands into their Air Defense Identification Zone.[57] In fact, China already produced a video game simulation of the PLA's 'retaking' of the Senkaku/Diaoyu Islands from Japan.[58] Therefore, the world could witness the usage of Chinese computer network attacks in a regional conflict to claim territory.

How could China use CNA to achieve its goal in a local war, given that most of its neighbors have defence treaties with the United States? One of the scenarios detailed by Chinese intelligence



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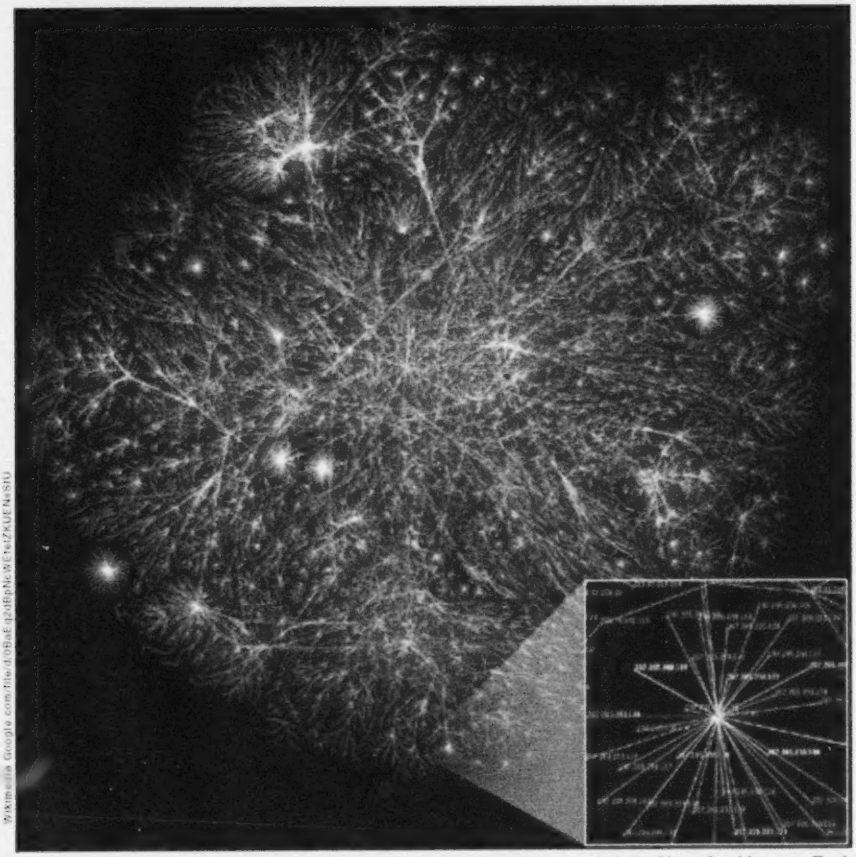
capabilities expert Dr. James Mulvenon hypothesizes China invading Taiwan and utilizing computer network attacks for delay operations, while US reinforcements are in their mobilizing and deployment phases.[59] Such a computer network attack would be directed against unclassified, logistical networks which offer a much easier target than closed operational networks. Compromise of logistical networks is within the capabilities of PLA information warfare units using the current TTPs, even within the reach of organized cyber criminals. Since the disruption of these networks would have to occur in early phases of a conflict, peacetime CNO will focus upon gaining and maintaining access to these networks without being detected.

Within the Canadian Armed Forces, the Defence Wide Area Network (DWAN) is the primary logistical network. With over 120,000 DWAN accounts, the department relies heavily upon DWAN for day-to-day activities. It hosts capabilities often dismissed as administrative, but that would cause major disruptions in CAF operations, should they become unavailable. Among them is the Defence Resource Management Information System (DRMIS), which includes the Material Acquisition and Support Information System (MASIS) used for maintenance, supplies from defence contractors, corporate operations, and support to military operations.[60] Disrupting DRMIS to delay or prevent West coast warships or air assets to support a US intervention in the Pacific could be possible. Another possibility would be to infect the DWAN with a "wiper" worm, which, once on the network and activated, would erase all data on all infected machines and render them unserviceable. Such a tactic was used against Saudi Aramco,[61] and on South Korean media and banks.[62] If critical elements of the network become infected, it could render the entire DWAN unusable, including mobile devices, e-mails, and logistics systems onboard ships. Given the current techniques observed, using CNO to delay or disrupt a military intervention in the Pacific is a plausible scenario.

This strategy will, however, require PLA elements to act quickly and to use their 'Assassin's Mace' against an adversary. As such, they would also need, solely from an information warfare angle, to gain information dominance by taking over or disrupting the adversary's communications systems. This would make telecommunications companies a target, as well as networks of critical infrastructure or governmental organizations. These tactics were used during the Georgian conflict of 2008. Again, exploitation of these networks would occur during peacetime, and those networks attack plans would be activated during a conflict. The skills required for computer network attacks are very similar to the skills currently needed for CNE. Such networks would be disrupted prior to a kinetic operation against the adversary in order to use the confusion to its advantage and follow the 'first strike' doctrine.

In Canada, the protection of critical infrastructure is still nascent as Public Safety attempts to establish links with industry, which usually does not report incidents, or dismisses them as technical problems. The extent to which the critical infrastructure is vulnerable is hard to assess, since the scrutiny of it is virtually nonexistent. SCADA systems are often the networks causing alarmist statements, given the lethal consequences they could possess. As



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Partial map of the Internet from 2005, which contains less than 30 percent of the Class C addresses. Each line is drawn between two nodes, representing two Internet Protocol addresses. The length of the lines is indicative of the delay between the nodes, and colours indicate the approximate geographic addresses of the addresses.

this responsibility rests upon Public Safety, the Canadian military only assumes the defence of their own networks, and relies upon internal security mechanisms of telecommunications companies and industry to ensure service to operations.

Conclusion

After a century of defeats, both by the ruthless imperial powers of the 19th Century, and due to brutal internal revolutions, China does not hide its ambition to once again become the "Middle Kingdom" in the next century. Despite its claims of a "peaceful rise," there is plenty of bellicose rhetoric emanating from the official mouthpiece of the Chinese Communist Party (CCP), especially when it comes to territorial sovereignty, and this is exemplified by the ongoing dispute with the Japanese over the Senkaku/Diaoyu Islands. The consequences of being technologically inferior are still fresh in Chinese memory, and it is therefore not surprising that China has embarked upon an aggressive modernization campaign.

However, the successful adoption of information warfare as one of the means to achieve this aim is a remarkable way in which to conduct asymmetric warfare. Using low cost means, China may have successfully stolen billions worth of intellectual property and fuelled their national objectives, saving a crucial amount of time and money in research and development. The Chinese spatial program and the development of its aerospace industries are good examples of such rapid development, allowing the Chinese industry to undercut competition in world markets. In the meantime, China continues its effort on economic and political fronts by buying stakes in strategic sectors, and by pushing for decentralized control of the Internet.[63]

In modern militaries, which are dependent upon computer systems, it only makes sense for an adversary to target these systems. As long as the cost of conducting CNO remains lower than defence costs and has the ability to disrupt operations, attacks upon information systems are very plausible. Additionally, most of these systems are maintained by civilian industry, which may not consider operational security as their Number One priority. Attacking civilian critical infrastructure, which often supports military communications, may prove an effective power projection tactic against modernized democracies.

As Canada closes out its mission in Afghanistan after a decade of counter-insurgency operations, we may now encounter a completely new type of warfare. The CAF faces new budget restrictions, and large-scale new 'boots on the ground' military operations, while always possible, are perhaps somewhat unlikely in the immediate future. This slowdown may be the opportunity for the CAF to consider its role in cyber operations, which are often training-intensive, but are relatively low cost when compared to traditional deployments. It may also be valuable to estimate how an attack upon our networks, both unclassified and classified, would impact military operations. Within industry, exercises are conducted to simulate a major attack against power grids and to test the interrelationships between organizations.[64] Banks also have adopted their own exercises to continue services in case of a major cyber attack.[65] More than 20 nations *have integrated* or *are integrating* military units to conduct operations in cyberspace,[66] and as the leaks from the National Security Agency (NSA) are released, we can expect this number to grow rapidly. Could the CAF deploy troops should logistics systems be unavailable? Can we defend against a major cyber operation against our networks? Or even against Canada? Could the CAF be able to contribute to cyber offensive operations within a coalition? These are some of the questions that the CAF will now face.

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Left to Right, Prime Minister Lester B. Pearson, Minister of National Defence Paul Hellyer, and Chief of the Defence Staff Air Chief Marshal Frank Miller, June 1965.

Unelected, Unarmed Servants of the State: The Changing Role of Senior Civil Servants inside Canada's National Defence[1]

by Daniel Gosselin

Civilian control of the armed forces is not civil service control of the armed forces.[2]

~General Rick Hillier,
Chief of the Defence Staff, 2005–2008

Major-General (Ret'd) Daniel Gosselin, CMM, CD, *recently completed a nine-month assignment as Senior Strategic Advisor to the Chief of the Defence Staff (CDS) and Team Leader of the CDS Initiatives Group. His last two positions in the CAF included Commander of the Canadian Defence Academy and Director General International Security Policy at National Defence Headquarters. He teaches occasionally at the Canadian Forces College, and holds graduate degrees in engineering, public administration, and war studies.*

Introduction

The role of senior civilians inside the Department of National Defence (DND) has evolved dramatically over the past fifty years. Unlike in the United States where most of the senior positions in the Department of Defense are filled with political appointees who change with each administration, in Canada (as in several Western democracies) it is career civil servants working in both DND and in the central agencies of government, such as the Privy Council Office and Treasury Board, who often act as the intermediary bureaucracy between the politicians and the military.[3] In Ottawa, the senior public servant at National

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CFHQ viewed from the 10th Floor of the Lord Elgin Hotel.

Defence is a deputy minister (DM), supported by several assistant deputy ministers (ADMs) and their senior civilian executive staff. These senior public officials are civilian leaders in their own right, who exercise significant power and influence over defence policy and military activities: they are the unelected, unarmed servants of the state.[4]

This article examines the evolution of the role of senior civilian public service employees inside DND, analyzing the pivotal events and phases that have shaped the expanding role of civilians since the early-1960s. The responsibilities and influence of senior civil servants at defence grew significantly over the years, in parallel with changes in the administration and machinery of government. In the early-1960s, civilian public servants were employed almost exclusively in junior trades and administrative positions in DND, and many of the senior positions were filled by former military officers. Over the years, public servants were brought in to add civilian expertise to manage and administer more complex defence programs, and to enhance the capacity of the military to deal with the central agencies and processes of the government.

> "The Department of National Defence was singled out because of its size, the range of its activities, and the magnitude of its budget."

Government after government has increased the authority of the Deputy Minister and moved civil servants into more and more senior positions inside DND, regularly reinforcing the concept of an integrated military–civilian strategic national defence headquarters (NDHQ). As this article highlights, successive governments have regularly conveyed, through direction, policies and statements, the importance of the role of senior defence public servants as a fundamental element of the Canadian civil-military framework for challenging, overseeing, and monitoring the military. Yet, politicians have seldom publicly expressed this need in such a clear way, justifying instead the requirement for a civilian-military headquarters with other reasons, such as efficiency and effectiveness.

This review focuses predominantly upon the dominant ideas and concepts that have shaped the expanding role of senior civilian officials within the department since the early- 1960s.[5] The examination is broken down into five parts, corresponding broadly to the different phases in the evolution of the role of civilian public service employees within DND. I begin with the work of the 1960 Royal Commission on Government Organization, which influenced the reorganization of the federal government and Canadian defence in the 1960s and 1970s.

The 1960 Royal Commission on Government Organization

One of the most significant events that would shape the views of future governments and ministers of defence toward greater integration of civilians within National Defence was the Royal Commission on Government Organization – known as the Glassco Commission, after its chairman J. Grant Glassco. Appointed by the Conservative government in 1960, the Commission was mandated "to inquire into and report upon the organization and methods of departments and agencies of the government of Canada."[6] Since managerial efficiency in government was the main interest of the commission, the role

of civilians within the department was examined carefully by the commissioners.

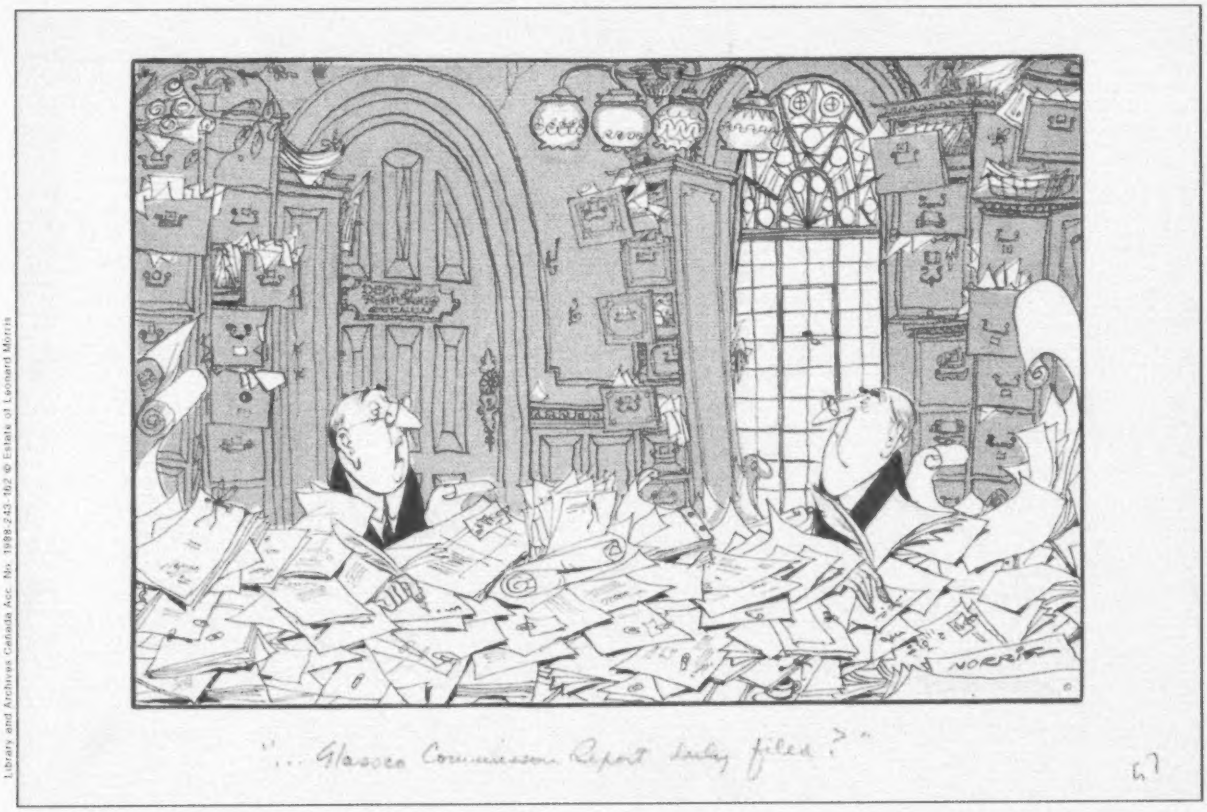
The Department of National Defence was singled out because of its size, the range of its activities, and the magnitude of its budget. The commission further acknowledged that "…the composition of the department is unique, consisting as it does of two elements, military and civilian differing in status, rank structure, and terms of employment, although they function as an entity."[7] In *Report 20*, the study of the commission specifically focused upon defence, the commissioners commented on the basis and structure of the defence organization, on its governance (in particular the role of senior civilian officials and military officers), and on defence human resources policies and practices. All these aspects touched directly upon the role of senior civilians inside the Department.

The commission first examined the role of the deputy minister. Acknowledging that the DM of DND is different from the DMs of other departments because, "…the general oversight and direction vested in the DM ... is exercised subject to the limitations set out in the National Defence Act," the commissioners nevertheless found his functions "too narrowly circumscribed," with the result that the defence minister did not receive the staff assistance required to discharge his responsibility for the direction of the Canadian defence establishment.[8] It is also clear that the commissioners looked at the DM as being the senior civilian official responsible to provide independent defence advice, and as the essential person inside the machinery of government whose task it was to assist politicians with exercising oversight of the activities of the armed forces. While the "Minister may rely primarily on the Chiefs of Staff Committee for advice," because "it is natural he should do so," the commission cautioned that,

> ...the military character of this group raises doubts as to *the reality of civilian control* if the minister places excessive reliance upon it. There is thus a need for a strong staff group which is essentially civilian in character, outside the framework of the management of the Armed Forces.[9]

The Glassco Commission also criticized the weakness of the defence committee structure of decision making, and proposed a more robust departmental civilian staff group, one that would be strengthened in its role relative to the three military services. It is important to note that the department had two structures in 1962: one civilian group under the direction of the DM, concerned with administration, finance, and procurement, and another organized functionally under the control of the chiefs of staff of the three services, dealing with operations, military policy, and training. A strong unified DM group would therefore be in a better position to take a more comprehensive view of defence organization and administration, opined the royal commissioners, and it was expected that the DM would be the senior defence official able to rise above tri-service rivalry when advising the Minister on defence issues.[10]

The lack of civilians in the higher administrative echelons of the department concerned the commission for several reasons. First, it was believed that many senior public administration tasks of the three services could be performed more efficiently by civilians. Downplaying military experience and expertise, the commission argued that civilians should be employed "even in such fundamentally



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"Glassco Commission Report duly filed?" Artist Len Morris.

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Minister of National Defence Paul Hellyer

military staff functions as those dealing with plans and operations." Increasing the number of civilians in senior defence positions would also provide more opportunities to combine the different backgrounds and expertise of civilians and military officers in the highest levels of the department, stated the commissioners, even predicting that it would "contribute to better [defence] performance."[11] In short, civilians would bring fresh perspectives on defence issues, add expertise in specific public administration and management areas, and even provide a much-needed internal challenge function in areas where none existed before.

Third, the commission pointed out that the lack of civilians in several areas of the department did not provide an opportunity to develop promising public officials for the higher echelons of the organization. By having civilians working in the military sphere of work, continued the commissioners, public servants would gain greater familiarity with defence matters, and this "...would reduce the tendency – to which civilians are all too prone – to regard military affairs as professional mysteries comprehensible only to the military mind." It would certainly prepare them better to serve in senior executive positions later in their careers, thus benefitting the DM organization as a whole.[12]

The commissioners realized that their recommendations to increase significantly the role of civilians inside the department would be viewed with scepticism and apprehension by a military that jealously guarded its autonomy and independence.[13] The object of their policy recommendations was clearly intended to integrate more closely the civilian and military elements of the Department. Still, conscious of how their recommendations might be perceived by the military and the three armed services, the commissioners thought it was necessary to add a reassurance:

> It is important that civilians employed in senior administrative posts in the Services should not be looked upon as having a duty *to control or check Service activities*. Their sole function should be to assist the Services and provide continuity in administering programmes, bringing an additional viewpoint and sometimes special skills to bear, and serving as partners and co-workers with the Service officers.[14]

Unless the government directed reforms from the highest levels, there were few expectations that the role of senior defence officials in the Department would change. The commission's work was certainly widely quoted in the 1960s and early-1970s, but, as events proved, and for reasons discussed below, its recommendations did not lead to immediate significant changes in the administration of defence policy in Canada. Nevertheless, over time, the Glassco Commission would have a formative impact on government operations, and it would provide a degree of authority to those who wanted to advance new reforms to the organization of defence.[15] One of those who would exploit the work of the commission to great effect was the young and ambitious Paul T. Hellyer, Minister of National Defence in the newly elected Liberal government in early-1963, who embarked upon the most radical set of reforms to affect the Canadian military since the early-1900s.

Unification of the Canadian Armed Forces

Minister Hellyer arrived at National Defence with a clear mandate to modernize and reorganize Canadian defence. A series of separate but interconnected events between 1957 and 1963 had created turmoil in Canada's defence policy, and had strongly influenced the new Liberal government to issue a new white paper on defence, to reorganize the military, and

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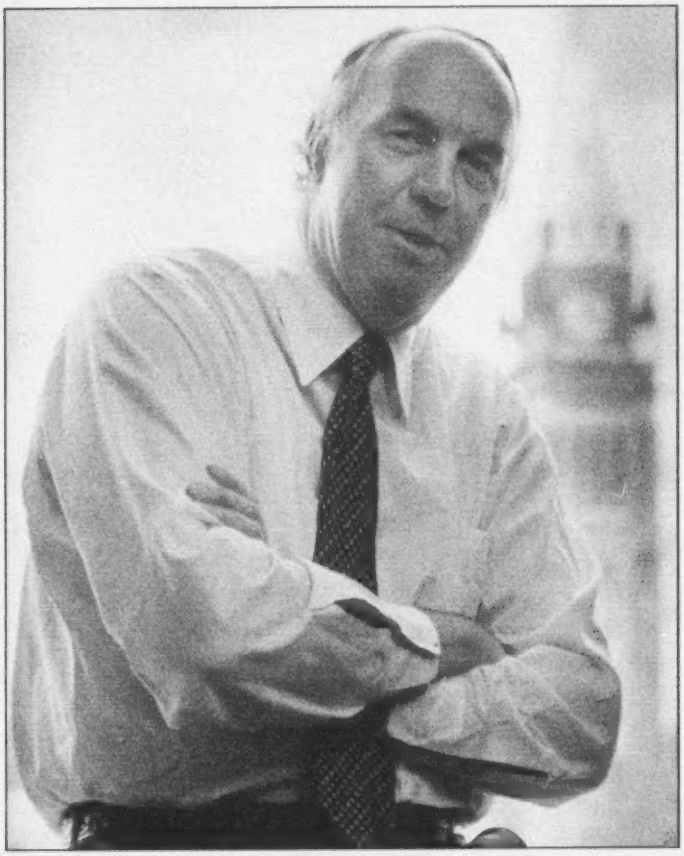
Air Chief Marshal Frank Miller



Canadian Press 19930815/UPC/Chris Schwartz

Donald Stovel MacDonald, Minister of National Defence, 1970–1971

to strengthen the mechanisms of civil control of the Canadian military, all of which had the potential to influence the role of senior civilians at defence.[16]

Hellyer's ideas first came to light with the 1964 *White Paper on Defence*, which contained several original concepts and set out the rationale for the unification of the armed forces. To the new Minister, the solution to the defence budget challenges was straightforward: to reduce the size of the defence organization, and to integrate the three armed forces service staffs under a single CDS and a single defence staff. In the white paper, the government frequently referenced the work and recommendations of the Glassco Commission, mainly to justify the impending reforms focused upon eliminating service duplication and upon increasing efficiency at defence.[17]

Hellyer had also acknowledged in the white paper that his success in maintaining effective civil control over the military – echoing the words of the Glassco Commission – entailed that the DM be given greater responsibility for the resolution of defence issues, for exercising a review function over the organization and the administration of the defence establishment, and for assisting him in discharging his responsibilities.[18] He quickly backed away from this commitment, stating in Parliament just two months after the white paper was released that "…there is no need to change the legislation relating to the deputy minister," emphasizing instead the need to protect against civilian staff assuming "functions which are necessary to the military staffs in order that they can efficiently control their military forces and carry out their military responsibilities."[19] Hellyer had pointed out, on a number of occasions, the need for the Minister of National Defence to receive separate civilian and military advice before making the political decisions, and it is thus clear that he never had any intention of amalgamating the CAF with the Department; integrating and unifying the military staffs was his main objective. It is thus not surprising that two subsequent acts of Parliament, in 1964 and 1966, to implement the government's agenda to restructure defence, made scant mention of the role of civilians in DND.[20]

By 1966, the issue of unification of the three military services had become highly controversial, and it had become a matter of public debate and open acrimony within parts of the armed forces, demanding the constant attention of the minister.[21] Confronted with a crisis of civil-military relations over much of his tenure as minister, Hellyer therefore devoted little effort on his initial commitment to strengthen the DM staff. Except for the creation of the Canadian Forces Headquarters (CFHQ) in 1966, which saw public servants who were working in the three service headquarters now working inside one unified headquarters, Hellyer essentially ignored nearly all the recommendations of the Glassco Commission with respect to civilians at defence, concentrating his efforts instead upon restructuring the military. By December 1967, when Hellyer left the defence portfolio, the role of civilians inside defence had changed very little, despite the studies and promises of the previous seven years. The Minister certainly asserted political control over the

military, but this was achieved primarily through the creation of the position of the Chief of the Defence Staff, which simplified civil control for him, the revamping of the Defence Council, which he chaired, and by exercising a forceful and directive management style that left no doubt with respect to who was in charge of the military and the Department.[22]

The Department under the DM thus remained relatively unchanged from 1953 until the early-1970s.[23] As the author of a comprehensive study on unification astutely observed in 1971, "civilians in the department … have suffered a very long period of what appears to be not merely neglect, but incomprehension of the role that [they] can play in facilitating the department's business."[24]

This situation changed dramatically in 1971, when a civilian team from outside government, mandated by a new minister of defence, returned with determination to the findings of the Glassco Commission, and proposed fundamental changes to the management and decision-making structure at Defence, and to the role of senior defence civilians.

The Creation of National Defence Headquarters and the "Civilianization" of the Military

In 1971, the Trudeau government announced in *Defence in the 70s*, the white paper on defence, the creation of a Management Review Group (MRG) to examine the organization and management of the entire defence establishment.[25] The review had been triggered by several defence problems and ministerial concerns in the late-1960s, including difficulties with the management of major equipment procurement contracts, a perceived lack of responsiveness from the Department to the Minister's and Cabinet's direction, and a lack of transparency with what was happening inside both the Department and the CAF.[26]

In their report, *Management of Defence in Canada*, the MRG identified a litany of major concerns in the areas of management, planning, procurement, financial services, personnel administration, and defence research. Three themes relevant to this article emerge from the report. The first was a need to increase dependence upon civilians with the requisite professional expertise in order to manage more complex defence issues. The second was a strong belief that defence outputs could be improved with sound modern management techniques. And, more critically, the group believed that it was time to break the central role of the CDS in the formulation of defence policy, for advising the defence minister on defence policy, and for managing military procurement, and to delegate these responsibilities to civilian assistant deputy ministers (ADMs).[27]

The MRG was convinced that two deep-seated factors were contributing to the mismanagement of defence: a flawed departmental organizational structure, and outdated attitudes in the senior echelons of the military and the Department with respect to defence management. It concluded that some of the managerial and administrative problems were caused by a lack of political sensitivity by senior military and civilian managers, a criticism centred upon the inability of the Department to adjust to changing priorities and values in Canada, and to work effectively with central agencies.[28] The review confirmed that a number of serious defence management problems demanded action, namely greater civil servant involvement in the administrative and management construct of DND. The government's solution was to link the two headquarters, the CFHQ and the departmental headquarters, and to change the distribution of responsibilities between civilian and military officials.

DSIC Images IS073-278

National Defence Headquarters (NDHQ) Ottawa on Colonel By Drive

The new NDHQ included the establishment of an additional assistant deputy minister, ADM (Policy), a civilian public servant who would be designated as the most senior of the ADMs, and who should be "…a politically sensitive civilian, with extensive experience in planning and coordination in the context of the activities of the Federal Government as a whole."[29] This move was clearly aimed at wrestling the development of defence policy away from the military, and at providing a focal point for liaising with other departments and the central management agencies of government. In the formulation of defence policy and the provision of advice to the Minister and government, the MRG thought it was important to make a distinction between military and defence advice, and the creation of a defence policy group under the DM, it was argued, was the most direct way to bring about this change.

The merging of the two headquarters – two separate bureaucracies with two different cultures – was a radical step. The intent was to significantly

CFJIC Imagery RE-PC86-157

General Paul Manson as Chief of the Defence Staff, 1986

alter, through an enduring organizational solution, the way Canadian defence was managed, and to realign the responsibilities and accountabilities of civilian officials and military officers, placing public servants in positions of influence and power in defence that they had never occupied before.[30] The impact of this decision, unforeseen at the time of the amalgamation, remains significant for the CAF and DND 40 years downstream.

The integration of CFHQ and the departmental headquarters in 1972, which resulted in military and civilian staff working side-by-side, immediately brought into greater focus the role of senior defence civilians. Then-Colonel Paul Manson (who would become CDS in 1986) penned an article in 1973 portraying the early days of the restructuring in as positive a light as possible. He came to the conclusion that the closer integration of civilians – experts in defence management – with the military had become "inevitable," and that the separation of military and civilian functions in parallel structures that existed until then was no longer suitable. He foresaw the closer civilian-military working relationship in the headquarters streamlining decision making, improving coordination, and facilitating the advancement of defence issues with central agencies.[31]

> "Critics of the national headquarters have not only been historians, defence commentators, and former senior military officers."

Prescient in his analysis, the future CDS could see several potential problems looming. Manson anticipated difficulties arising with the "introduction of civilians into the military command structure at NDHQ," with the division of responsibilities between the military deputy chiefs and the ADMs, and with "a tendency towards bipolarity, that is, for elements of the organization to polarize around the CDS and the DM along military and civilian lines." Echoing a statement that the Glassco Commission had made a decade earlier with respect to the potential growing influence of civilians, Manson cautioned those who were concerned that it "would be wrong to suppose that this [closer civilian-military relationship] reflected a need to impose tighter civilian control of the military in Canada, because that control is already absolute."[32] Without the benefit of the MRG report (which was not released publicly until 1984 because of its sensitivity), Manson was perhaps unaware that, on the contrary, the decisions made by the government in 1971 to create NDHQ, to strengthen the role of the DM, and to shift important responsibilities away from the military (such as in defence policy, materiel, and procurement) was driven largely by a need for the government and the minister to exercise, in a more effective and active way, day-to-day oversight, monitoring, and control of the military.

The rearranging of the military and departmental headquarters chairs had not even been completed in early-1973, when another restructuring took place, and the criticism of the new organization started immediately. Concerns with respect to the "overly centralized, overly staff-ridden" and excessively civilianized organization would grow in the 1970s and 1980s, and would continue for more than 25 years.[33] Critics complained frequently about the 1972 reforms, blaming Hellyer and his unification project as the event that set the conditions for the creation of NDHQ, forgetting, as years went by, that several defence mismanagement issues that had occurred in the late-1960s and early-1970s had pushed the government to the NDHQ solution. Admiral Robert Falls, the CDS between 1977 and 1980, commented that with the creation of NDHQ in 1972, the CDS and his senior commanders at NDHQ began losing their control over the CAF. Falls lamented that the strengthening of the DM's staff as a means of enhancing civil control by the political executive provided public servants "a degree of authority over military affairs without responsibility for military accountability or performance."[34]

The most commonly heard argument criticizing NDHQ was that the changing role of civilians and military officers had, over time, led to a blurring of the responsibilities of civilian officials and military officers, to increased civilianization and bureaucratization at defence, and to an excessive reliance upon management and business methods.[35] Many decried that those factors contributed to a progressive loss of operational focus in the CAF, and a corresponding erosion of military ethos.[36] Throughout the 1970s and 1980s, concerns were raised that officers were acquiring skills and an orientation characteristic of civilian administrators or even political leaders, contributing to a decline in military professionalism.[37] At NDHQ,

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Robert Fowler (far left), Deputy Minister of National Defence (DMND), prepares to depart Canadian Joint Force Headquarters for Mogadishu Airport, Somalia, in 1993.

civilianization was used to denote the change of culture taking place, in particular that military policies, regulations, and decisions were becoming generally based upon civilian and public service concepts, values, and interests.[38]

As expected, the civilianization of the CAF was one of the central issues that emerged from the report of the Task Force on Review of Unification of the Canadian Forces in 1980, and its subsequent review by the next government. Mandated with examining the merits and disadvantages of the unification of the CAF, together with an analysis of the command structure, the task force interviewed nearly one thousand serving members, and was told that the CAF had adopted civilian norms and standards to an unacceptable degree.[39] Upon careful consideration, however, the task force concluded that the perception that existed in the CAF may have been based upon an incomplete understanding of the nature and functioning of NDHQ, "attributable to the composition of the Defence Management Committee [the senior departmental committee] which is perceived to be dominated by civilians."[40] In the subsequent review of the findings of the task force, completed in early-1980, the government confirmed that there was no intent to "de-unify" the Canadian Armed Forces, and it completely evaded the issue of civilianization. In doing so, it validated the concept of an integrated military-civilian headquarters structure.[41]

Throughout the 1980s, NDHQ remained a house divided, and the criticism of the headquarters, and of the role of senior public servants in it, did not abate. The perception, as one author characterized the feeling at the time, was that the CAF "had lost control of their own headquarters," and that public servants were exercising undue influence over matters that were exclusively military in nature.[42] With the creation of NDHQ, it was often claimed that the government had consciously inserted senior public servants between the military and politicians, even though the imposed NDHQ organizational solution, and the increased role of senior civilians, never got reflected in the *National Defence Act*. However, on a day-to-day basis, and more importantly, in law, the CDS continued to report directly to the Minister of National Defence. Defence analyst (and retired military officer) Douglas Bland, who remained for over twenty years the harshest detractor of the concept of an integrated headquarters, contends that the idea "to send out public servants to watch over the military… [provided politicians with] …an illusion of civil control over the military." In the end, continued Bland, instead of resolving disagreements between senior military officers, ministers now had to adjudicate between the military and public servants.[43]

Critics of the national headquarters have not only been historians, defence commentators, and former senior military officers. Civilians complained equally about military officers and their management incompetence. Deputy Minister C.R. "Buzz" Nixon declared in 1982 that NDHQ was staffed inappropriately by military officers who were incapable of managing well in the Ottawa environment, and that "military parochialism," or friction between the services within the military, was contributing to several projects and ideas being unsuccessful in Ottawa.[44]

The failure by many over the years to fully appreciate the reasons for the apparent heightened influence of civilians at NDHQ, which persisted both inside and outside the CAF, meant the controversy would not fade over time. In fact, it would culminate in the mid-1990s, when the NDHQ integration would be critically re-examined as part of several reviews conducted for the preparation of a new white paper on defence, and as part of the Somalia Inquiry.

The 1994 Defence White Paper and the Somalia Affair

In the early 1990s, with the end of the Cold War and expectations of a peace dividend, successive governments aggressively targeted defence in its efforts to eliminate the federal deficit.[45] The end result was deep budget cuts, a significant reduction of the civilian (and military) establishment at defence, and the introduction of new approaches to providing defence services. At the same time, the beating death of a Somali teenager by Canadian soldiers during a United Nations peacekeeping mission in 1992 set off several investigations, inquiries, and studies specifically into the incident, and the Canadian military

in general, and triggered a series of important reforms that impacted not only the military, but the Department as well.

Testifying in September 1994 to a Special Joint Committee of the Senate and House of Commons (SJC), which was looking into a new defence policy, Deputy Minister Robert Fowler tabled a document entitled "The Organization of Canadian Defence," outlining the responsibilities of the DM and the CDS and the role of NDHQ. It also specifically addressed the criticism of the current headquarters, and, in particular, the contribution of senior civilians:

> A number of observers have called for the separation of the civilian and military branches of the Department.... In the main, however, they argue that the present arrangement encourages civilian "interference" and "politicizes" the military.
>
> In fact, the integrated headquarters exists precisely because, at the strategic level, political imperatives, economic considerations, and operational issues are inseparable. Operations, capital equipment programs, and other Departmental activities have political and economic context [*sic*] that must be addressed. Beyond matters that one might call "departmental", the inescapable reality is that DND and the CF must also carry out government-wide policies and programs with respect to social change, bilingualism, and open government.
>
> An integrated military-civilian headquarters does this more *effectively and efficiently*, drawing as it does on the different but complementary skills of the military and civilian staffs. Uniformed personnel are able to provide their unique expertise on military questions, but they are not as experienced as civilians in dealing with political considerations, governmental compromise, and public finances. Beyond this, while actions at the strategic level impact on the operational level (and vice versa), civilian involvement does not compromise the chain of military command in operations.[46]

Having heard "conflicting testimony of whether this [integrated headquarters] arrangement is appropriate for the needs of the Canadian Forces," the SJC could not come up with a recommendation for the government, and instead suggested a more detailed study.[47] The *1994 White Paper on Defence*, released a few months later by the Liberal government, directed the military and the Department to reduce all headquarters dramatically (the reduction target was set at 50 percent), and to put in place a new command structure. However, the government ignored the advice of the SJC for a follow-on study, and instead, strongly validated in the white paper the need for a civilian-military NDHQ before anyone had serious thoughts about dismantling it and "reversing the civilian-military integration of National Defence Headquarters."[48]

> "For all intents and purposes, the new CDS was creating an operations-focused military headquarters inside NDHQ."

While downsizing and re-engineering was taking place across defence, the Somalia Commission of Inquiry of 1995–1997 was unfolding, and it was making national headlines. The commission did not examine the role of senior civilians in any detail, although it laid blame upon both the military and public servants for the events that took place in Somalia. The Inquiry, focusing primarily upon examining matters related to the deployment and employment of the Canadian military in Somalia, strongly implied in its report that senior civilian public servants had intruded in military affairs, operational issues, and the military chain of command, and this interference had contributed to a series of ill-advised decisions regarding the deployment of the Canadian Airborne Regiment. The commission critically observed that the "influence of the DM in all areas of defence policy, including 'direction of the CF,' has increased significantly over the years, especially since 1972," when NDHQ was created, and cautioned that the "notion of civil control of the military should not be confused with control exercised by public servants," as it undermines the responsibilities of Parliament.[49]

General John De Chastelain, CDS when the Somalia deployment decision was made in the fall of 1992, was questioned quite extensively in 1996 by the Somalia Commission with respect to the division of responsibilities between the CDS and the DM, and, in particular, the "danger" that the integrated headquarters had contributed to a blurring of the functions and authorities between the two individuals. De Chastelain was unequivocal in his answer on this matter, stating that the CDS and the DM worked well, arguing instead that "the danger is greater by the separation of the two functions, particularly at the strategic level and at National Defence Headquarters" where the integrated military-civilian mix facilitates a "strategic understanding and the strategic provision of advice to the ministers and to Cabinet of defence issues."[50] In essence, De Chastelain repeated the same words that Deputy Minister Fowler had offered to the SJC two years earlier.[51]

It was tempting for outsiders not understanding the workings of the DM-CDS joint governance, and for those who wanted to break apart NDHQ, to blame interference and undue influence in policy and operations decisions by senior public servants, in particular the DM, for some aspects of the Somalia decisions. "Over the years," wrote military historian David Bercuson in 1996 at the height of the Somalia Inquiry, "the power and influence of the DM have increased while those of the CDS have declined," leading him to conclude that the "merging of military and civilian advisors at NDHQ has been disastrous."[52] Notwithstanding the constant criticism against NDHQ and the CDS-DM diarchy, we know today that the Somalia fiasco was primarily a command, leadership, and professionalism failure of the Canadian military on many levels.

In the end, the Somalia Commission did not go as far as recommending a separation of the military and civilian structures at NDHQ, as some were strongly advocating, or for any fundamental change to the role of senior civilians. It recommended, however, that the *National Defence Act* be amended to "expressly prohibit the deputy minister from assuming the powers or prerogatives of the minister as regards the authority to direct the CDS in any matter concerning the 'command and administration of the CF.'"[53] Significant amendments to the NDA were made in 1998, but without any change to the role and responsibilities of the CDS and the DM.[54]

DND photo AR2006-0016 0006 by Master Corporal Yves Gamas

General Rick Hillier, Chief of the Defence Staff (CDS) [left], visits the troops in Afghanistan, 29 September 2006. Brigadier-General Dave Fraser, Commander Regional Control South (RC South), is on the right.

Minister of National Defence Doug Young observed in his 1997 *Report to the Prime Minister on the Leadership and Management of the Canadian Forces*, released as the Somalia Inquiry report was being tabled, that there is "…a great deal of misunderstanding and misinformation about how our national headquarters works."[55] However, Young strongly defended the importance and legitimacy of having senior public servants involved in Canadian defence management, and summarily dismissed any notion of returning to a pre-1972 construct for NDHQ:

> Civilians must have a significant role in the national structures of every democracy. There are, of course, many ways of structuring complementary civilian and military work relationships. No one model is perfect. Everywhere, however, the effectiveness of the system rests on cooperation and consultation at all levels – not on totally separate structures working on the same things at the same time often at cross purposes and in ignorance of one another....
>
> An integrated military-civilian headquarters makes it likely that Canada's national agenda will be addressed effectively and efficiently, drawing on the different, but complementary skills of military and civilian staffs.[56]

> "Over the years, there has been much criticism of NDHQ and of the alleged heightened power and influence of senior civil servants within DND."

Having confirmed the criticality of the role of senior public servants at NDHQ, Young chastised the military for not preparing adequately its officers, especially general and flag officers, for not having "a solid and in-depth understanding of the role and functions of the Department, government in general and the central agencies in particular." He stressed that senior officers must also have a solid appreciation of the roles of civilians at NDHQ to be able to perform effectively in an integrated civil-military headquarters.[57] The Minister acknowledged, however, the concerns expressed with respect to a blurring of the military and civilian accountabilities at NDHQ, and directed that the authority, responsibility, and accountability of the CDS, DM, and senior civilian and military staff be clarified.

General Hillier's Transformation and the Afghanistan War

In early-2005, the government announced the appointment of General Rick Hillier as the new CDS. Hillier's strong leadership, unbounded confidence, and strategic focus changed the balance of the relationship between senior civilians and the military.

The 2005 *Defence Policy Statement* (DPS) highlighted a new vision for the Canadian military, including a commitment to increase the defence budget, to expand the forces, and to transform

DND photo, CK2008-0157-22, by Private Pamela Forney

Deputy Minister of National Defence Robert Fonberg (centre), poses in front of a CF-18 *Hornet* during a visit to 410 Squadron CFB Cold Lake, 28 May 2008.

their capabilities. Uncharacteristically for a Canadian defence policy paper, the DPS provided much detail with respect to the transformation of the operational capabilities and the command and control structure of the CAF. Nonetheless, the document was mute with respect to the Department and the role of civilians. This silence, combined with a Minister and a DM who were supportive of the changes proposed by Hillier, gave the strong-willed CDS the latitude he needed to assert his authority, and to quickly pursue important changes to NDHQ to better position the headquarters to support Canadian military operations in general, and the impending war effort in Afghanistan in particular.[58] Hillier's transformation targeted both the functions of NDHQ and the CAF-DND strategic governance, and, by extension, the role of senior civilians inside the national headquarters.

Scarred by the legacy of the 1990s, especially the aftermath of the Somalia Affair, and the multiple verdicts that suggested the Canadian military had lost its operational focus and military ethos, Hillier moved quickly to transform NDHQ and to strengthen the decision-making role of the military for matters affecting operational issues. It is clear that in pushing for an operational focus and a 'command-centric' approach to decision making, he wanted to restore to the military some responsibilities for operational issues that he believed should be decided by military officers, and not by senior public servants. As such, the increased focus upon actual combat operations in Afghanistan provided him the opportunity to reinforce the importance of military professional expertise in Canada. Hillier had been frustrated by the tendency of civilian politicians and senior bureaucrats to discount military advice and expertise, and the Afghanistan operations were increasing the status, power, and influence of military advisors, especially those like him who had present-day operational experience to back up their rhetoric.[59]

Hillier established a new unified command structure with four operational commands, and formed a new Strategic Joint Staff (SJS) to assist him with the strategic command of the armed forces. With the creation of Military Personnel Command in 2007, he also strengthened the separation of military personnel from civilian human resource administration, returning to an organizational model pre-dating the creation of NDHQ.[60] For all intents and purposes, the new CDS was creating an operations-focused military headquarters inside NDHQ. In all this, the DM, Ward Elcock, facilitated Hillier's efforts to develop and implement his transformation policies and initiatives.[61]

Despite the significant publicity surrounding Hillier's efforts, which was at times negative, the fundamental role of civilians in DND during this period changed little, except that their efforts were now focused upon supporting the Canadian military in several demanding operations, at home and away, including a combat mission in Afghanistan.[62] The high operational tempo, unprecedented in recent memory, gave everyone an opportunity to exercise their wartime role, and the responsiveness of NDHQ validated the view that the restructured military-civilian integrated headquarters could function very effectively in both peace and war.[63]

In his change of command speech as CDS in July 2008, Hillier warned the audience with respect to attempts by senior civil servants ("field marshal wannabes" as he labelled them) to assume a bigger role in directing the day-to-day operations of Canadian military forces in the field. "Civilian control of the armed forces is not

Canadian Press 20070206/Tom Hanson

Chief of Defence Staff General Rick Hillier, Defence Minister Gordon O'Connor, and Deputy Defence Minister Ward Elcock (left to right) testify before a Commons Defence Committee on Parliament Hill in Ottawa, 6 February 2007.

civil service control of the armed forces," stated Hillier loudly.[64] Although he did not make the distinction at the time, it is clear that Hillier's criticism was not directed at defence civilian officials, but rather at bureaucrats of the central agencies of government and other departments who wanted more influence and control over the Canadian military in Afghanistan.[65] Inside defence, there was no doubt in anyone's mind that Hillier strategically commanded the CAF with a firm grip.

In his 2009 memoirs, *A Soldier First*, Hillier asserted that Conservative Defence Minister Gordon O'Connor had offered to separate the CAF from DND (i.e., to break apart NDHQ) to bring clarity to the military and civilian roles inside defence. Hillier had dismissed the offer at the time, since the relationship that he had established with Deputy Minister Elcock allowed him to continue his transformation of the Canadian military. In hindsight, however, Hillier changed his mind, coming to the conclusion that "separating the Canadian Forces completely from the government bureaucracy in Ottawa may be the best way to ensure it remains effective."[66]

Hillier was no doubt passionate in his view and had the best interest of the nation in mind, but it is very difficult to envisage how the Canadian military could work effectively in Ottawa, and in domestic and overseas multinational operations, if it were functionally separated from DND. He was definitely right to protect the sanctity of the military chain of command, such that orders and direction to the military come from senior military commanders, but he was 'off the mark' in not recognizing the role of civil servants in assisting elected officials with managing defence issues and in exercising civil control of the military.

Since 1972, governments have continuously reinforced the notion that defence policies and advice will be better coming from a balance of military leaders and civil servants working together inside defence. As University of Ottawa political scientist Philippe Lagassé observed correctly in 2010 in his comprehensive study *Accountability for National Defence*, "…senior bureaucrats play a legitimate and necessary role in helping to keep the military accountable to cabinet, and vice versa."[67] While the legitimacy of civil control of the military in Canada has never been in doubt, the extent and the manner to which this oversight and control are exercised, especially by senior bureaucrats inside defence or in the central agencies of government on behalf of politicians, has often been contentious.

Conclusion – Enhancing Civil Control with Unarmed Civil Servants

During the 1950s and 1960s, the large majority of civilian public servants in Canadian defence were employed in junior trades, clerical, and administrative positions. Following the recommendations of the 1960 Royal Commission on Government Organization, and, in particular, the merging of the CAF and DND headquarters into NDHQ in 1972, defence civilian employees gradually expanded their roles, bringing administration and managerial expertise to specialized functions

in middle management and senior executive positions. Still, the large majority of civil servants in Canadian defence today continue to work diligently inside units and formations of the CAF, providing key and essential support to ensure that the CAF can carry out its missions daily.[68]

The major shifts in the roles and responsibilities of senior public servants in DND occurred over fifty years to achieve three main objectives. The first was to create a stronger DM group, including civilian staff who could take a comprehensive view of defence policy and issues in order to better assist ministers of national defence in performing their functions. The creation of the policy group in 1972 represented the most visible statement of this requirement. Along with the modernization of public administration and the growth of the federal government, the second was to bring needed civilian expertise to manage and administer more complex defence programs and to enhance the capacity of the military to deal vertically and horizontally with the central agencies and processes of the government. The third purpose was to assist the government and politicians in exercising oversight of the CAF, and in strengthening civil control of the military.

The creation of NDHQ in 1972 definitely changed the respective roles of civilians and military officers in the senior levels of the Department, and this is precisely what the government and successive defence ministers intended the reforms to achieve. Recommendations of independent commissions and study groups, and many initiatives of the government over the years, were all intended to increase the responsibilities, authority, power, and influence of senior civilians, in particular, those of the Deputy Minister. As the Somalia Inquiry underscored in its report, the changes progressively – and deliberately – brought civilian defence bureaucrats into the process of military policy and decision making.

Over the years, there has been much criticism of NDHQ and of the alleged heightened power and influence of senior civil servants within DND. But, as General de Chastelain and Deputy Minister Fowler pointed out almost two decades ago, it is difficult to envisage how the Canadian military could work effectively in Ottawa these days if it were functionally separated from the Department of National Defence. There is also a clear expectation from the current government, as it was with the Glassco Commission in 1963, the Management Review Group in 1972, and Minister Young's 1997 *Report to the Prime Minister*, that the growing presence, authority, and influence of knowledgeable senior public servants inside Defence will not only allow them to critically probe and challenge military advice and recommendations, but provide the government with better strategic choices and more effective policies to allow it to make wiser defence decisions for Canada. The most useful model to run Canadian defence remains one in which the CDS and the DM work closely together, supported by an integrated civilian-military staff, and linked closely with the elected politicians, other departments, and the central agencies of government.

Events of the last decade and changes of recent years in government and NDHQ have, on one hand, brought a certain degree of clarity to the responsibilities and accountabilities of the DM and the CDS, but, on the other, these have contributed to accentuate the CDS-DM polarization that Colonel Manson had predicted and feared in 1973. General Hillier's transformation of the CAF and NDHQ in 2005-2006, and the conflict in Afghanistan, have contributed significantly to bring a greater distinction between the military and civilian roles in NDHQ, in particular for operational issues. The robust command structure that now exists in the CAF, from the tactical to the strategic level, with the CDS commanding at NDHQ supported by a dedicated strategic joint staff, ensures that military advice and orders to CAF units come from military commanders in the chain of command, as is stipulated in the *National Defence Act*. Civilian public servants certainly participate in the process on many levels, but military commanders *decide*, and are *accountable*. At the same time, the enactment of the *Federal Accountability Act* in 2006 has conferred even more authority upon the DM, by being legally answerable to Parliament, as the DND's accounting officer, for the proper use, allocation, and management of departmental resources and finances.[69] Those responsibilities are bound to continue to collide with those of the CDS, who is charged in the *National Defence Act* with the "control and administration" of the CAF.

As this article has argued, government-after-government has seen it important, over four decades to frequently *affirm*, and to *maintain*, the integration of civilian public servants with military officers in one strategic defence headquarters, often justifying NDHQ for reasons of efficiency and effectiveness, rather than articulating it on the need to enhance civil control of the military. The gradual changing role of public servants in the top echelons of Defence must be seen within the context of the important evolutionary changes that took place in government over the years, and, in particular, defence accountability at large, rather than strictly as an assertion of civilian supremacy or political control over the military.[70]

Ultimately, as a former CDS astutely said nearly two decades ago, the organization of Canadian defence, and, in particular, the role of senior defence civil servants within NDHQ, has a crucial impact on civil-military relations in Canada, affecting not only how the different groups – politicians, military officers, public servants in defence and elsewhere in government – interact, but, more critically, the quality and relevance of the military and defence advice provided to government.[71] Those contemplating future changes to the role, authority, and organization of the unelected, unarmed servants of the state at National Defence must be mindful of this reality.

CFJIC Imagery S02008-0061 by Master Corporal David McCord

DMND Robert Fonberg, CDS General Rick Hillier, Chairman Canadian Defence Associations Institute (CDAI) Lieutenant-General (Ret'd) Richard Evraire, and Prime Minister Stephen Harper at the CDAI Annual General Meeting, 21 February 2008.

NOTES

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2 CTV Newsnet, "Hillier Speaks from the Ceremony," 2 July 2008, at <http://www.ctv.ca/CTVNews/CanadaAM/20080702/Hillier_retire_080702/>. No longer accessible.

3 It must be stressed, however, that the *National Defence Act* is clear that the CDS does not report to a public servant, but to the Minister of National Defence and to the government (i.e., Prime Minister).

4 This expression and the title are adapted from Peter Feaver's well-known expression from his work *Armed Servants: Agency, Oversight and Civil-Military Relations*, paperback edition. (Cambridge, MA: Harvard University Press, 2005).

5 The role, authority, power, and influence of senior civil servants involved in defence issues in the central agencies of government is also critical, but deserves a separate study of its own. This article focuses exclusively upon civil servants inside DND.

6 Royal Commission on Government Organization [hereafter Glassco], *Report 20: Department of National Defence* (Ottawa: Queen's Printers, 1963), p. 61.

7 *Ibid*, p. 61.

8 *Ibid*, pp. 74–76.

9 *Ibid*, p. 76 (emphasis added). Of note, the use of the term 'staff group' in 1963 referred specifically to the DM's civilian staff.

10 Douglas L. Bland, The Administration of Defence Policy in Canada 1947 to 1985 (Kingston, ON: Ronald P. Frye, 1987), p. 126; and Glassco, *Report 20*, p. 77.

11 Glassco, *Report 20*, pp. 65–66, and pp. 78–79.

12 *Ibid*, pp. 78-79.

13 Bland, *Administration of Defence Policy*, p. 126.

14 Glassco, *Report 20*, p. 79 (emphasis added).

15 On the influence of the Commission 25 years later, see Donald Savoie, *Governing from the Centre*, (Toronto: University of Toronto Press, 1999), p. 203.

16 Daniel Gosselin and Craig Stone, "From Minister Hellyer to General Hillier," in *Canadian Military Journal*, Vol. 6, No. 4 (Winter 2005–2006), pp. 6–7.

17 *White Paper on Defence, March 1964*, in Douglas L. Bland,(ed.), *Canada's National Defence, Volume 1: Defence Policy* (Kingston, ON: School of Policy Studies, Queen's University, 1997), p. 92.

18 *Ibid*, p. 93.

19 Paul Hellyer, *House of Commons Debates*, 8 May 1964, p. 3068, and Bland, *Administration of Defence Policy*, p. 46.

20 Bland, *Administration of Defence Policy*, pp. 37–53.

21 Daniel Gosselin, "The Storm over the Unification of the Armed Forces," in *The Insubordinate and the Non-Compliant: Case Studies of Canadian Mutiny and Disobedience, 1920 to Present*, Howard G. Coombs (ed.) (Toronto: Dundurn, 2007): pp. 309–343.

22 Hellyer, *House of Commons Debates*, 8 May 1964, p. 3068.

23 D.G. Loomis, "The Canadian Forces and the Department in War and Peace," supporting paper to NDHQ Study S3/85 (Ottawa: DND, 1985), p. 43; see in particular the discussion at pp. 70–78.

24 Vernon Kronenberg, *All Together Now: The Organization of the Department of National Defence in Canada 1964–1972* (Toronto: Canadian Institute of International Affairs, 1973): p. 67.

25 *Defence in the 70s*, in Bland, *Volume 1*, p. 172.

26 Loomis, "The Canadian Forces and the Department in War and Peace," pp. 93–94; and also J.L. Granatstein and Robert Bothwell, *Pirouette: Pierre Trudeau and Canadian Foreign Policy* (Toronto: University of Toronto Press, 1990), pp. 236–243.

27 *Management of Defence in Canada – Report in Brief* (Ottawa: DND, 1972), in Douglas L. Bland,(ed.), *Canada's National Defence, Volume 2 Defence Organization* (Kingston, ON: Queen's University, School of Policy Studies, 1998), pp. 167–172;

and Bland, *Administration of Defence Policy*, pp. 57–85 and pp.126–127 for a complete discussion.

28 *Management of Defence in Canada*, in Bland, *Volume 2*, p. 168, and pp. 185–200 for a complete list of symptoms identified by the MRG.

29 This ADM was initially identified to as ADM Strategy, Policy and Plans, but was quickly shortened to ADM (Policy) by fall 1972. *Management of Defence in Canada*, in Bland, *Volume 2*, p. 212 and pp. 219–222.

30 It is important to note that the MRG report called for the DM to be incorporated into the Minister's office, and to outrank the CDS. This recommendation was never implemented, with the CDS and the DM remaining on an equal level to this day.

31 See Paul Manson, "The Restructuring of National Defence Headquarters," in *Canadian Defence Quarterly*, Vol. 3, No. 3 (Winter 1973–1974), Figures 1 and 2, pp. 9–10, and p. 13.

32 *Ibid*, p. 9, and pp. 12–14.

33 On early concerns, see E.M.D. Leslie, "Too Much Management, Too Little Command," in *Canadian Defence Quarterly*, Vol. 2, No. 3 (Winter 1972–1973), pp. 30–32; and J.E. Neelin and L.M. Pederson, "The Administrative Structure of the Canadian Armed Forces: Over-Centralized, Overly Staff-Ridden," in *Canadian Defence Quarterly*, Vol. 4, No. 2 (Summer 1974), pp. 33–39. On continuing concerns, see Peter Kasurak, "Civilianization and the Military Ethos: Civil-Military Relations in Canada," in *Canadian Public Administration*, Vol. 25, No. 1 (Spring 1982), pp. 108–129; and Bland, *Chiefs of Defence: Government and the Unified Command of the Canadian Armed Forces* (Toronto: The Canadian Institute of Strategic Studies, 1995), pp. 27–74, passim.

34 Robert Falls, as quoted in D.G. Loomis, "The Impact of the Integration, Unification and Restructuring of the Functions and Structure of National Defence Headquarters," supporting paper to NDHQ Study S1/85 Report (Ottawa: DND, 1985), p. 130.

35 Douglas L. Bland, "Institutionalizing Ambiguity: The Management Review Group and the Reshaping of the Defence Policy Process in Canada," in *Canadian Public Administration*, Vol. 30, No. 4 (Winter 1987), pp. 527–549.

36 See, in particular, Kasurak, pp. 108–129, and David Bercuson, *Significant Incident: Canada's Army, The Airborne, and the Murder in Somalia* (Toronto: McClelland & Stewart, 1996), pp. 72–74.

37 The Somalia Inquiry discussed this issue in their report. See Gilles Létourneau, *Dishonoured Legacy: The Lessons of the Somalia Affair*, Report of the Commission of Inquiry into the Deployment of Canadian Forces to Somalia, 5 Vols. (Ottawa: Public Works and Government Services Canada, 1997), Vol. 1, p. 81.

38 Bland, *Volume 2*, p. 249; and Kasurak, pp. 109–110.

39 *Task Force on Review of Unification of the Canadian Forces*, Final Report (Ottawa: DND, 15 March 1980), in Bland, Volume 2, p. 306.

40 *Ibid*, p. 337.

41 Remarks given by the Honourable Gilles Lamontagne [MND] on the Review of the Report on the Task Force on Unification of the Canadian Forces (Ottawa: DND, 17 September 1980); and Bland, *Volume 2*, pp. 347–350. For the review, see J.E. Vance, *Review Group on the Task Force on Unification of the Canadian Forces* (Ottawa: DND, 15 March 1980), in Bland, *Volume 2*, pp. 351–406.

42 Kasurak, p. 112.

43 Bland, *Chiefs of Defence*, p. 290.

44 *Ibid*, p. 163 and p. 170.

45 *1994 White Paper on Defence* (Ottawa: DND, 1994), Chapter 7, "Implementing Defence Policy."

46 Robert Fowler, "The Organization of Canadian Defence" (Ottawa: DND, 1994), a document prepared for the Special Joint Committee of the Senate and House of Commons; the document was later tabled in 1996 by DM Robert Fowler as Exhibit P-105 for his testimony to the Somalia Inquiry (emphasis added). In this testimony, Fowler implied that the document he tabled was a departmental document, and had been endorsed by the CDS. Emphasis added.

47 Pierre De Bané and William Rompkey, *Security in a Changing World*, Report of the Special Joint Committee on Canada's Defence Policy (Ottawa, 1994): p. 44.

48 *1994 White Paper on Defence*, in Bland, *Volume 1*, pp. 348–352.

49 Letourneau, *Dishonoured Legacy*, Vol. 5, p. 1459; also, Philippe Lagassé, *Accountability for National Defence*, IRPP Study No. 4 (March 2010), pp. 35–36.

50 The first 'danger' quote is from the Commission's counsel when questioning General De Chastelain. Testimony of General De Chastelain, 20 February 1996, in Vol. 49, in particular, lines 9825–9845.

51 In his testimony, Robert Fowler (who had just left his DM post for an ambassadorial assignment) strongly echoed the statements made by General De Chastelain. Testimony of Robert Fowler, 20 February 1996, in Vol. 50, in particular, lines 10160–10165.

52 Bercuson, pp. 72–74.

53 Létourneau, *Dishonoured Legacy*, Vol. 5, p. 1459

54 Bill C-25, An Act to Amend the National Defence Act received royal assent in December 1998, and consisted of the most significant amendments to the NDA since 1950. The focus of the bill was upon the military justice system.

55 M. Douglas Young, *Report to the Prime Minister on the Leadership and Management of the Canadian Forces* (Ottawa: DND, 1997): p. 30.

56 Young, pp. 29–30.

57 *Ibid*, pp. 30–31.

58 Philippe Lagassé, "A Mixed Legacy: General Rick Hillier and Canadian Defence, 2005–08," *International Journal* (Summer 2009): pp. 617–618. Also, see General Rick Hillier, *A Soldier First: Bullets, Bureaucrats and the Politics of War* (Toronto: HarperCollins, 2009), p. 397, p. 406, p. 418, p. 427, and p. 469.

59 Lagassé, "A Mixed Legacy," p. 617.

60 See Gosselin and Stone, "From Minister Hellyer to General Hillier," for a more complete discussion on Hillier's transformation initiative.

61 Lagassé, "A Mixed Legacy," p. 617.

62 Lawrence Martin, "In Defence, the Civilian Side in on the Slide," in *The Globe and Mail*, 7 September 2006; and Eugene Lang and Janice Gross Stein, *The Unexpected War: Canada in Kandahar* (Toronto: Viking, 2007), pp. 260–261.

63 E-mail communications between the author and General Walter Natynczyk (CDS 2008–12), 28 May 2013.

64 CTV Newsnet, "Hillier Speaks from the Ceremony." See also Murray Brewster, "Hillier Warns against Civil Servants Directing Military Operations," in *The Globe and Mail*, 11 October 2010, at <http://www.theglobeandmail.com/news/politics/hillier-warns-against-civil-servants-directing-military-operations/article1214753/>, accessed 15 August 2013.

65 Hillier, pp. 411–427.

66 *Ibid*, p. 427.

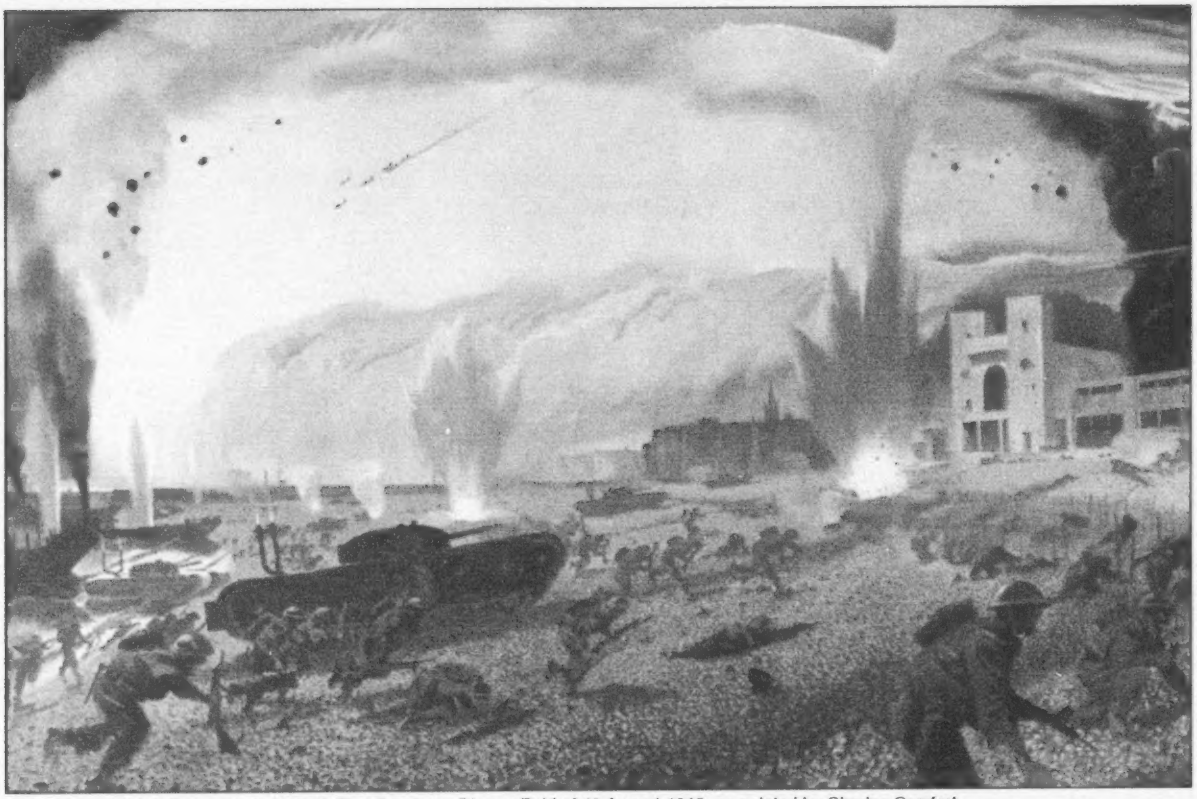
67 Lagassé, *Accountability for National Defence*, p. 57. For a discussion on the new accountabilities of a federal DM, see Jacques Bourgault, "Federal Deputy Ministers: Serial Servers Looking for Influence," in Jacques Bourgault and Christopher Dunn, (eds.), *Deputy Ministers in Canada: Comparative and Jurisdictional Perspectives* (Toronto: University of Toronto Press, 2014), pp. 372–375.

68 64 percent of civilians in defence are employed inside CAF units and formations. *Report on Transformation 2011* (Ottawa: DND, 2011), p. 16; the data is current as of 31 March 2010.

69 Lagassé, *Accountability for National Defence*, p. 47. Bourgault defines four specific obligations of accounting officers, and limitations. See "Federal Deputy Ministers," pp. 373–374.

70 Lagassé, *Accountability for National Defence*, p. 29; and Bland, *Chiefs of Defence*, p. 198.

71 General (ret'd) Gerry Theriault (CDS 1983–1986), "Democratic Civil-Military Relations: A Canadian View," in Jim Hanson and Susan McNish, (eds.), *The Military in Modern Democratic Society* (Toronto: The Canadian Institute of Strategic Studies, 1996): p. 10.



Why geographic intelligence is important. The disastrous Dieppe Raid of 19 August 1942, as painted by Charles Comfort.

Know Your Ground: A Look at Military Geographic Intelligence and Planning in the Second World War

by Lori Sumner

Major Sumner *joined the Naval Reserves in London in 1995. As a Naval Reserve Logistics Officer, she served at HMCS* Prevost *in London, Ontario, and at Naval Reserve Headquarters in Québec City. In January 2005, she transferred to the Regular Force as a Logistics (Air) officer. After postings in Trenton and Borden, she is now working at NDHQ Ottawa for the VCDS Group. Major Sumner is also currently pursuing a Master of Arts in War Studies at the Royal Military College of Canada in Kingston, Ontario.*

> *"What is possible will depend first on geography, secondly on transportation in the widest sense, and thirdly on administration. Really very simple issues, but geography I think comes first."*[1]

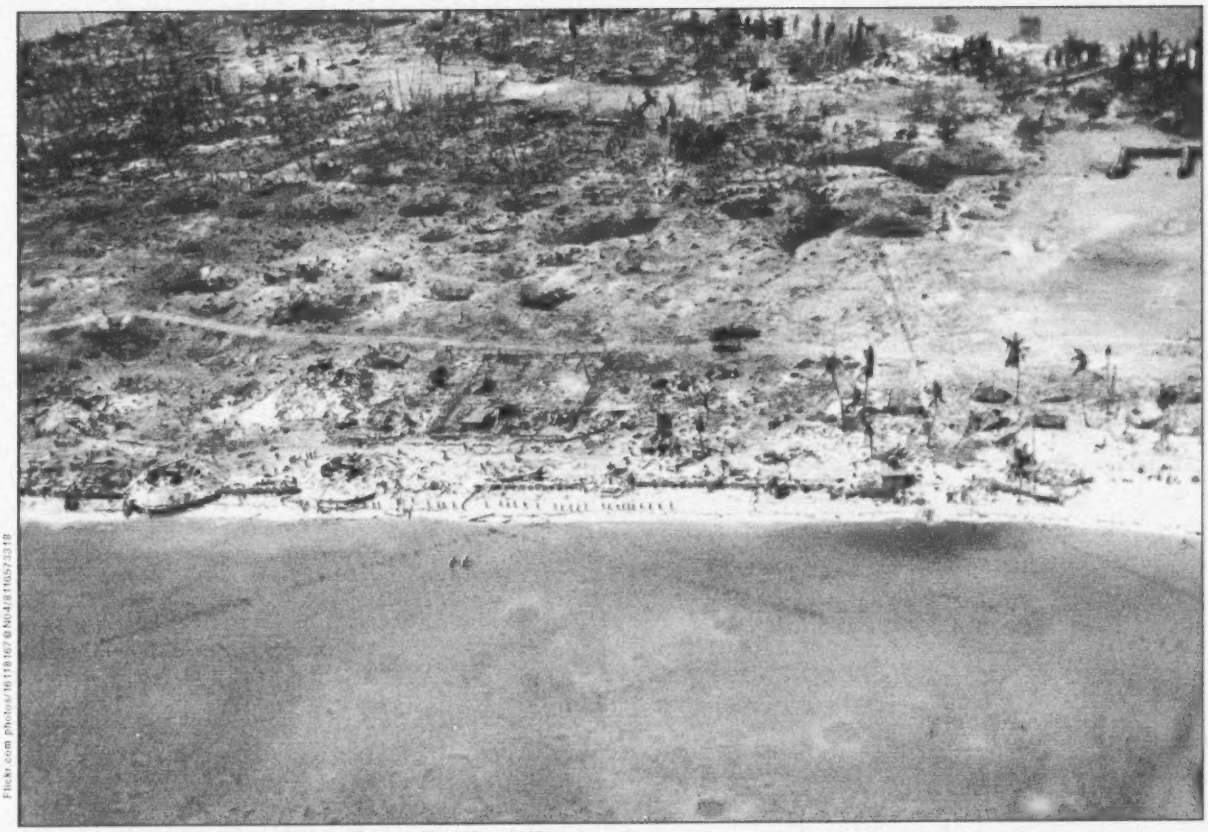
> *"The increasing importance of terrain features and, thus, maps to mechanized military operations, has made the impact of erroneous or out of date maps potentially disastrous. Cultural features such as roads and the extent of the built-up area, may change dramatically between map survey and map printing. On a battlefield, bridges disappear, dams are breached and buildings reduced to a rubble at a speed faster than the changes can be posted to the best of maps."*[2]

Introduction

Intelligence and Geography have been intertwined with the need/desire to wage war throughout history, to varying degrees of success. Geographic intelligence is one of the few forms of intelligence that is inherently both tactical and strategic in nature. The accuracy and thoroughness of geographical intelligence and its integration with the planning phases can significantly affect the outcome of both tactical and strategic operations.

The Second World War required a scale of effort to gather geographic intelligence and to provide appropriate products to the military that was beyond anything done to that point.[3] The global reach of the war meant that many soldiers were introduced to new terrain and climatic conditions, which could differ significantly from those to which they were accustomed. Understanding these new factors and having the appropriate equipment were crucial to victory, or survival at the very least, in hostile climates and environments.

Geographical features wherein combat occurred on both strategic and tactical levels included the Atlantic and Pacific Oceans,



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Aerial view of landing beach conditions at Tarawa, November 1943.

which required considerable planning and execution on both levels. The heavy reliance of the British upon resources from Canada, the United States, and the Caribbean was an essential strategic consideration for the British, since without a steady supply of men and matériel the war would likely be lost. The Germans realized this as well, and any major disruption or destruction of shipping would assist in meeting their strategic aim of defeating the British. At the tactical level during the Battle of the Atlantic, the Allies used a combination of convoys, escorts, signals intelligence, and increasingly-developed technology, such as airborne radar, to combat German surface ships and U-boats. The Germans used U-boats and signals intelligence to hunt the convoys. At the height of their success, they gathered in the mid-Atlantic, out of reach of long-range patrol aircraft, to hunt convoys in wolf packs.

In the Pacific, the Americans had to formulate a long-term strategy for winning the war against Japan. The Tarawa atoll in the Gilbert Islands, and Iwo Jima in the Japanese Volcano Islands, were two key strategic islands, the conquest of which was required for the invasion of the Japanese home islands. The Gilbert Islands were considered a necessary part of any serious thrust at the Japanese empire, as they constituted Japan's closest base to the American supply routes from San Francisco. A key advantage to starting with the Gilbert Islands meant that aircraft leaving there could cover the Samoan area and deter forces from striking the neighbouring Marshall Islands. This was important, since only the large land-based aircraft provided a stable enough platform for quality aerial photo reconnaissance. It was later noted that the US could not attempt to capture any defended island without adequate aerial photographs.[4]

"In the Pacific, the Americans had to formulate a long-term strategy for winning the war against Japan."

This article will take a brief look at some battlefield environments and the particular challenges they pose. Means of collecting geographic information and related products and assets will be reviewed, and then the Normandy invasion will be discussed as a case study. Finally, the relevance of geographic intelligence will be considered in terms of its overall importance to current and near-future military planning.

Geographic and Environmental Factors

In the North African desert, the lack of roads, water, and petrol all constituted tactical and logistical nightmares, but they were shortcomings over which the Allies ultimately prevailed, due to their increasing command of the air and sea. Allied air and sea superiority slowly but surely hindered German operations, primarily by restricting re-supply.[5] The Eighth Army's advance from El Alamein in 1942 owed much to hydro-geological studies which resulted in the provision of adequate supplies of potable water.[6] In contrast, water supply transportation was a serious challenge for the Germans, as no tank trucks or tank trailers were made available to them. Water

Michelle Keogh Glen Flickr com photos 37056416 14

Tarawa and its airfield, as viewed from the air.

had to be transported in 20 litre cans, which imposed an extra strain upon the already-stretched fuel supply and transportation services.[7]

Elsewhere, the German armies were also ill-prepared for the harsh Russian winters. The winter climate was a challenge on the Eastern Front, with weapon and vehicle mechanisms freezing stiff, or even with tempered steel cracking. However, the Soviet tanks, especially the T34, were more effective in deep snow due to their wide tracks and high ground clearance, and they were used to make paths for the Soviet soldiers.[8]

Apart from the challenges of operating in extreme climates, it was considered important to fully comprehend the tactical challenges of the physical environment. At Arnhem, the Allies appear to have failed to understand fully the challenges of the riverine environment in which they would be operating, since their advance was stopped well before their goal of the Rhine River. The roads were high, very narrow, and had only two lanes, and they were flanked on both sides by deep drainage ditches. Vehicles were easy targets for the experienced German forces concealed in nearby forests, and their frequent destruction halted all progress on the narrow roads. Fields and orchards had intricate drainage networks which also severely restricted both vehicle and troop movement, as did the swamps and marshes located in the area. The plan to take the bridges at Arnhem had called for a rapid approach by armoured forces to meet up with an advance airborne element, but the requisite rapidity of advance could not be sustained on the narrow roadways, due to the successful destruction of Allied vehicles by the German forces. The inability of the Allied forces to meet the required timings and to reinforce the airborne element contributed to the failure to take the bridges at Arnhem.[9]

Water and amphibious operations were also a challenge in the Pacific. Very little physical reconnaissance appears to have been done on Tarawa by the Americans before their assault. The invasion date was based upon tide information provided by British shipmasters who were familiar with the area, as well as from charts initially drawn up by the US Navy in 1841. *Favorable*, but not *optimal*, high neap tides were projected for the morning of 29 November 1944, which were expected to provide an estimated 1.5 metres of water over the coral reefs. As the landing craft draught required 1.2 metres, it was thought that an extra .3 metres of water would constitute a safe margin. As predicted by an American who had been living there for some time, there was no neap tide, and the first three waves of tracked vehicles barely made it over the coral, while succeeding waves of vehicles ended up being stuck on the coral, 450-900 metres from shore. The Marines then had to wade ashore, unprotected, and under heavy gunfire from the well-fortified Japanese.[10]

Although this section has only covered a very limited selection of geographical and climatic factors, the importance of good geographic intelligence clearly cannot be underestimated. However,

the sources and products of geographical intelligence used for making tactical and strategic decisions should also be considered when determining the ultimate success or failure of an operation.

Sources

During the Second World War, civilian and military intelligence organizations had to labour hard to meet the growing intelligence and planning needs of their armies, navies and air forces.[11] Most intelligence organizations had geographical or topographical sub-sections tasked to meet the insatiable demand for maps, aerial photographs, and other bits of geographical or geological information. Ideally, the analysts in these sub-sections possessed a combination of geographical knowledge and military experience, since they could understand what users were seeking, and could translate the requirements and results into the appropriate language for the intended audience. Unfortunately, this pool of personnel was limited as they were often called to the front instead of being allowed to provide their services at home.[12]

Both aerial and ground reconnaissance was vital for the navy and army. With increased Allied assets applied to aerial reconnaissance, German U-boats and ships were successfully tracked and sunk during the Battle of the Atlantic. In Africa, the Pacific and on the Eastern Front, both sides used aerial reconnaissance to scout the terrain, as well as to identify the strength and location of enemy forces. Ground reconnaissance parties with embedded engineers scouted terrain to locate enemy defences, and to find the best available terrain for tanks and other heavy vehicles.

Midget submarines operated by Allied Combined Operations Beach Reconnaissance and Assault Pilotage Parties transported specially-trained volunteers close to the beaches. Their task was to swim ashore and to covertly auger soft sediment and collect samples of stone, as well as to make observations with respect to obstacles to cross-beach movement and exit. On their return, beach samples were sent to the Geological Survey of Great Britain for analysis.[13] Britain's Special Operations Executive (SOE) was used to gather geographic information in addition to its other covert activities. The identification of suitable coasts for amphibious landings under fire was essential for the invasion of Europe. To help in the beach analysis effort, SOE collected picture postcards, holiday snapshots, and landed men to take samples of beach sand and pebbles of the northwest coast of France. By 6 June 1944, over 200 beaches had been photographed, and their gradients had been determined.[14]

Photography, and, more specifically, aerial photography, was one of the most useful and versatile tools for gathering geographic intelligence, since a single image could provide valuable information to a range of users and analysts who did not have to rely upon an observer's memory or notes. Aerial photographs provided bomber aircrews an opportunity to become familiar with their targets, better enabling them to minimize collateral damage,[15] while oblique photographs were used to provide information on natural as well as man-made obstacles on beaches.[16] Aerial photographs were also used to assess bombing damage and locate and identify Hitler's secret weapons programs. In 1943, an RAF Mosquito exposed its remaining film over the Baltic coast at Peenemunde. Interpreters detected an unfamiliar weapon, and model makers used one photo to make a model by measuring shadows to estimate its size. It was estimated that subsequent raids on Peenemunde delayed German V-weapon attacks on Britain by four-to-six months.[17]

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Canadian planners study a German relief model of the beachhead during D-Day landing operations.

A wide range of other intelligence was provided by defence attachés, émigrés, espionage, strategic intelligence, field reports, the swapping of information with other Allies, secret deals with foreign booksellers, and reports from foreign travellers, such as businessmen, miners, and engineers. Much information came from open sources that were published or purchased prior to the start of the

war, such as the British Ordnance Survey maps, Royal Geographical Society resources, maps and memoirs published by the Geological Survey, Admiralty Charts, and their Allied equivalents.[18] Captured enemy maps and charts provided both valuable information on new territory gained, and a glimpse into strength and intentions.[19]

Products

The geographic products provided to planners and operators can be broken down into four broad categories. Aerial photography produced much of the raw data used by analysts, so the Central Interpretation Unit was established in Britain in 1940, and by 1942, it possessed over three million photographs covering most of Europe.[20] One major drawback to aerial photography, however, was its inability to penetrate camouflage or heavy foliage, particularly in the Asian and Pacific jungles. Nor could it produce the required details on beach hydrography, soil conditions, or beach exits.[21]

The first category of products consisted of reports. Researchers partnered with scientists from many fields to provide general or specific assessments and reports on regions of interest, topography, the economic impact of bombing raids, politics, culture, and society. For example, economists assessed the damage done by bombing raids and made suggestions for new targets, such as the German synthetic fuel factories, the loss of which slowed both the *Luftwaffe* and German armour.[22] Hydrologists and geologists also provided estimates as to the amount of flooding that would be caused by the destruction of dams.

> "Aerial photographs were also used to assess bombing damage and locate and identify Hitler's secret weapons programs."

The second product, deception, was an *unlikely* but *successful* outcome from the geographical intelligence sections. 'Goings' (mobility maps) had been produced by the Royal Engineers for areas of North Africa, and altered versions were 'allowed' to be captured by the German *Afrika Korps*. This succeeded at least once in directing a formation of German tanks into impassable ground. In another example, public announcements of locations where German rockets were landing in 1944 were deliberately misplaced, so the main point of impact was shifted away from Central London to rural Essex.[23]

The third category of product consisted of three-dimensional models, which were useful tools for operators and planners alike, as they provided an all-direction comprehension of terrain.[24] Models were painstakingly produced from oblique and vertical aerial photographs, and used several different construction techniques. By 1942, direction had been given that terrain models were to be employed in the planning and briefing of major operations. Assaults which combined different nations and forces were complex operations, requiring detailed and reliable intelligence that could effectively be passed on to those involved in the planning and actual execution of an operation. The invasions planned for Sicily and Normandy dominated the work of the model makers, who also provided models for air attacks on civilian targets such as dams, factories, and oil refineries, as well as targets applicable to South East Asia Command.[25]

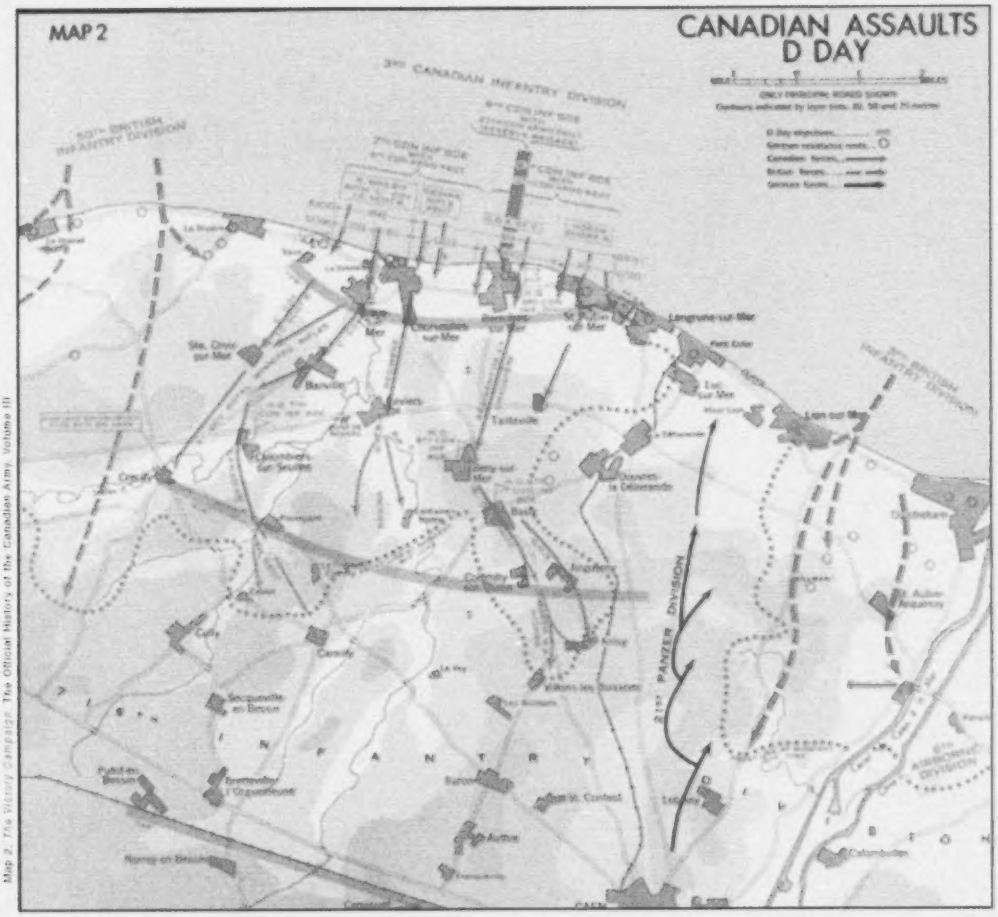
For strategic planning, the models were small-scale, with little detail, but had the vertical scale exaggerated to three-to-four times the plan scale. Models for assault landings by army, navy, and aircrews were of exceptionally high standard and detail, since they would be used for different planning requirements and by all manner of forces. Low oblique photos of the detailed models were taken for recognition of landing points under artificial light to mimic varying light conditions.[26] *Overall*, and perhaps *not surprising*, the individual effectiveness of terrain models and aerial photography was enhanced significantly when used in combination for planning purposes.[27]

Maps were the fourth main category of product, and were the most widely used and distributed.[28] Although they cannot be objectively compared against the value of other products such as reports, deception or models, the importance of maps can certainly be assessed by their sheer quantity. As an example, during the D-Day landings on 6 June 1944, four sappers (combat engineers) landed with ten tons of maps. During the following three months, the British and Canadians printed over three million maps, while the US Army's Engineers printed three million maps in July and August 1944 *alone*.[29]

British Army Royal Engineers officers remotely generated water supply maps, which guided the drilling of boreholes for water supply in continental Europe to British and Allied installations as part of the infrastructure necessary to facilitate the ensuing mobile campaign.[30] Topographic maps provided information on terrain, facilities, and transport networks, while specialist maps provided additional information. Although usually based upon properly-surveyed maps, aerial photography was used for rapid updates, with marks indicating the status of bridges or roads, or the movement of enemy troops, noted on the photographs before mass reproduction.

In Germany, geologists prepared a series of maps for command staffs for Operation *Sea Lion*, which was based upon British 1 inch (1:63 360) Ordnance Survey maps published (and purchased) between 1921 and 1936. These maps were issued at the 1:250 000, 1:100 000, and 1:50 000 scales, showing on separate sheets building terrain, water supply, 'goings'[31] maps for transport, coastal landforms, and construction materials.[32]

A little-known use of specialist maps was for escape and evasion. After the First World War, there was a significant change in official attitudes towards prisoners of war (POWs). This was due to the valuable information the escaped prisoners brought back, as well as the extent to which the enemy had to divert valuable resources to recapture them. The British created the MI9 Department in December 1939 to take full advantage of this change in attitude. MI9 facilitated the escape and return of British POWs, collected and disseminated information with respect to techniques for escape and evasion, denial of information to the enemy, and maintenance of POW morale.[33] MI9 also instilled the philosophy of escape and evasion to all services, and while doing so, produced and distributed silk maps for this purpose.[34] Escape kits for POWs were secreted in everything from cards, to board games, to cigarette tins. They were never delivered by Red Cross parcels, but by MI9's own cover organizations disguised as POW morale and welfare organizations.[35]



Map 2. *The Victory Campaign: The Official History of the Canadian Army, Volume III*

Once Normandy was selected over Calais, the specific landing area was selected. The initial plan was to land on the beaches of the Cotentin peninsula with the immediate objective of capturing the port of Cherbourg, essential for re-supply of men and matériel. Air superiority and the ability to utilize airfields in France to maintain air superiority were also essential. The appraisal of Normandy's geology, specifically the suitability of the Calvados plateau for temporary airfields, was one of the main factors leading to selection of beaches used near Caen.[37]

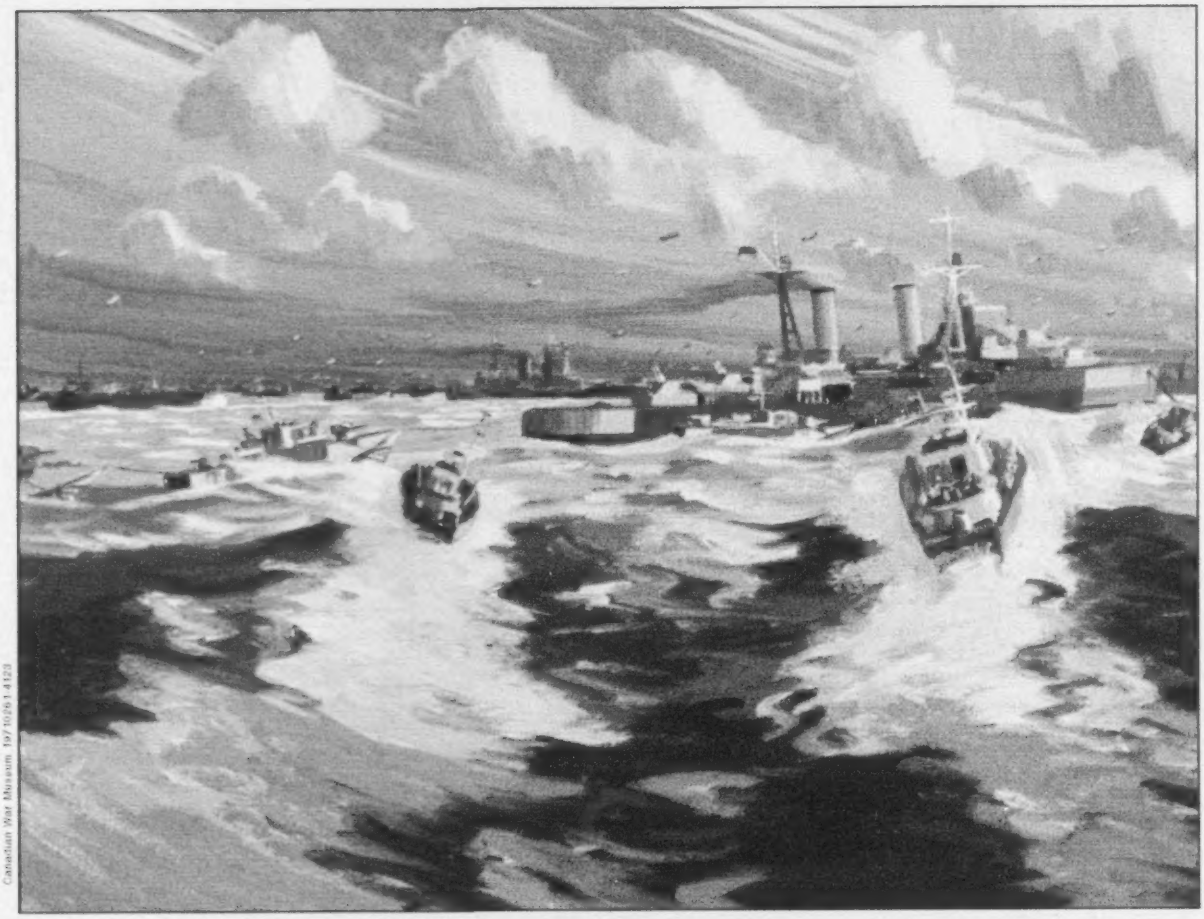
Once the specific invasion area was selected, amphibious scouts collected hydrographic information in the vicinity of potential beaches, assessed the conditions of beaches and their exits, and analyzed the nature of the terrain behind the beaches. They collected information with respect to the location and type of underwater obstacles, enemy defensive positions, and, when possible, the location and size of enemy reserves. This information was required for many purposes: landing craft commanders had to know exactly what part of each beach to assign to their unloading, and what type of obstacles with which they would have to contend. Naval logistics sections had to know the exact tonnage of matériel to be loaded, since the trim of carriage vessels varied according to beach conditions, therefore accurate knowledge of underwater gradients and beach composition was important.[38] Infantry commanders also needed to know what kind of obstacles and defences they would encounter, while tank and truck drivers wanted to know over what ground surfaces they were going to be driving.

To meet these needs, the geological section of the Inter-Services Topographic Department for Operation *Overlord* studied the potential invasion beaches for a year prior to D-Day and predicted the soil conditions for possible airfield sites in Normandy.[39] The Normandy beaches were analyzed in detail, not only with regard to configuration and slope, but also with respect to the distribution of peat, clay, sand and shingle.[40] During beach trials of vehicles and equipment at Brancaster beach in Norfolk, the geological composition of which was deemed similar to Normandy, the effects of peat as an obstacle to cross-beach mobility were assessed by

Case Study – Normandy

The invasion of Europe required extensive planning and rehearsals to execute the projection of military power from the sea onto a hostile shore. Close coordination and precise timing was necessary among all participating air, sea, and land components. The physical features of landing sites were carefully considered in both planning and execution phases, including many easily-overlooked but essential or critical factors. One of these factors was the ease of exit from a beach. This had to be considered in terms of both slope and beach matériel support capacity, which were essential characteristics for both soldiers and vehicles. Additionally, the inland landscape had to allow sufficient space for logistics staging and for coordinating the assault forces. Port facilities and transportation networks were essential for rapid movement of troops and matériel off ships and inland.

For the main invasion, the Allies considered both the Normandy and the Pas de Calais coasts. Calais was closer and it possessed port facilities, if they could be secured before they were destroyed. However, Calais provided three avenues of approach for the Germans. On the other hand, Normandy better matched the invasion requirements. It was flanked to the east by swamps and the Seine River, and to the west by the Atlantic Ocean, leaving only one approach for the Germans. A port was also available at Cherbourg.[36]



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Windy Day in the British Assault Area, by C. Anthony Law

landing large numbers of vehicles under different tidal conditions on different parts of the coast.[41]

Planners benefited from their experience of the Dieppe raid in August 1942, North Africa in November 1942, and Sicily and Italy in 1943. British, Canadian, and American geographers, geologists, engineers, and cartographers were all involved in the two years of preparations.[42]

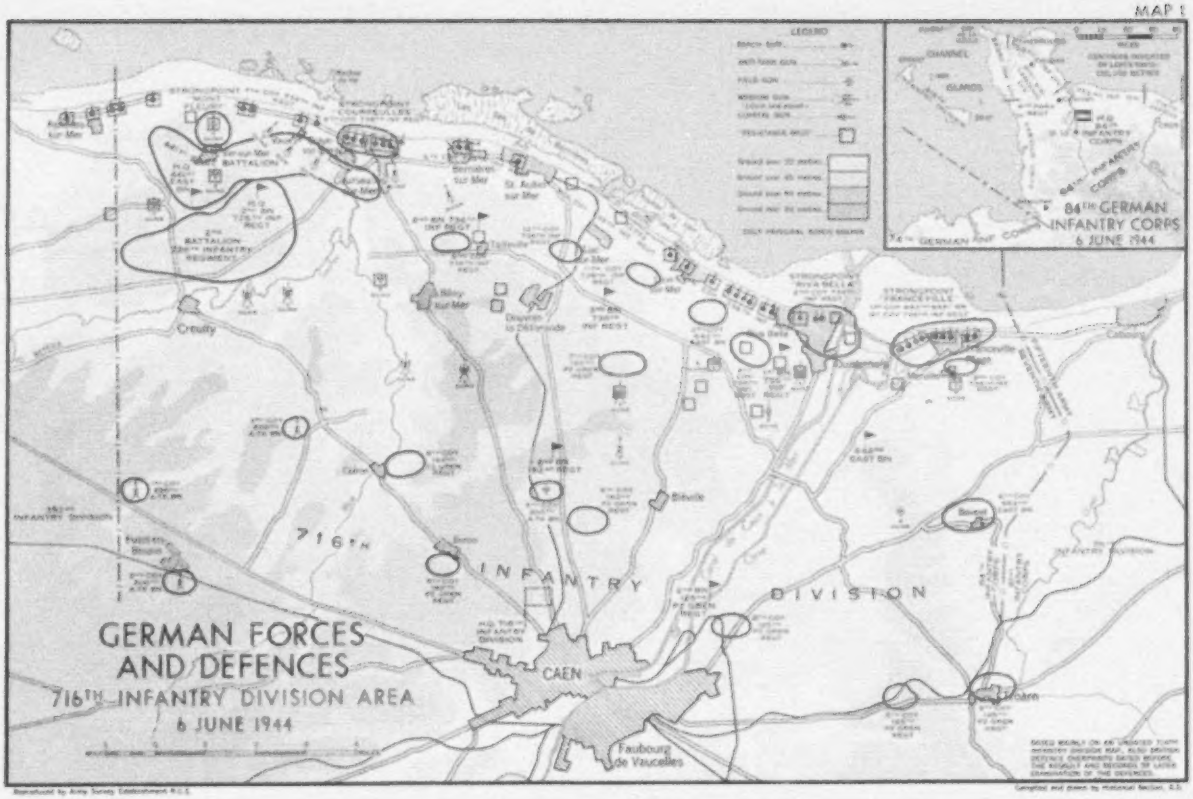
The weather and oceanographic conditions were also critical to the invasion. For tactical reasons, it was important that the landing take place at dawn during a low tide, which would reveal beach obstacles and avoid a prolonged grounding of the landing craft necessary for transporting reinforcements and supplies. Five kilometres of visibility was required for effective naval gun support, effective air cover, and accurate bombing. A full moon was needed to enhance the planned large-scale night-time airborne operations. Calm seas would lessen seasickness, disorganization, and accidents, but light winds would help clear smoke and fog. It was felt these weather conditions ideally should last at least 36 hours to provide sufficient time to land both forces and supplies. [43]

The weather parameters for a successful invasion were based upon the operating limits of the equipment to be used. Meteorologists sought details from planners on the weather factors which would defeat the invasion if not met: phases of moon favorable for parachute drops and glider landings, suitable beach tides, limited fog and mist. Three days of good weather post-invasion would allow for initial re-supply. Invasion scheduling initially focused upon April or May in order to maximize temperate summer weather for offensive operations, but the date slipped for logistical reasons, mainly, to accommodate the arrival of more landing craft, which helped facilitate the landings.[44] The decision to increase the size of the invasion force, and the need to conduct additional air operations, also contributed to postponing the invasion.

"The weather parameters for a successful invasion were based on the operating limits of the equipment to be used."

Unlike Tarawa, meteorologists and oceanographers possessed considerable *historical* data for the English Channel and its ports, while *current* data was radioed in from ships in the North Atlantic. As the Atlantic Ocean was no longer available for open hunting

MAP 1



Map 1: *The Victory Campaign: The Official History of the Canadian Army, Volume III*

by German U-boats in early-1944, the Germans possessed only limited resources to keep the German High Command up to date on weather conditions. The overall area for the forecast was critical, as both the launch and landing areas had to have acceptable weather. The reliability of the forecasts was a challenge, as they were only reliable to about two days in advance, and ships' crews needed that time simply to load troops. Planners had determined the invasion required at least one good day to allow for two essential assaults, at dawn and at dusk. Although a storm front moved in during the original planned date of 4 June, meteorologists found an opening on 6 June, before a second weather front would severely limit air superiority. This recommendation was the critical 'go/no go' factor for Eisenhower.[45] Due to their limited resources, the Germans missed the one day window and let down their defensive guard, under the assumption that the invasion would be at Calais, and that the Allies would not launch their invasion under current weather conditions.[46]

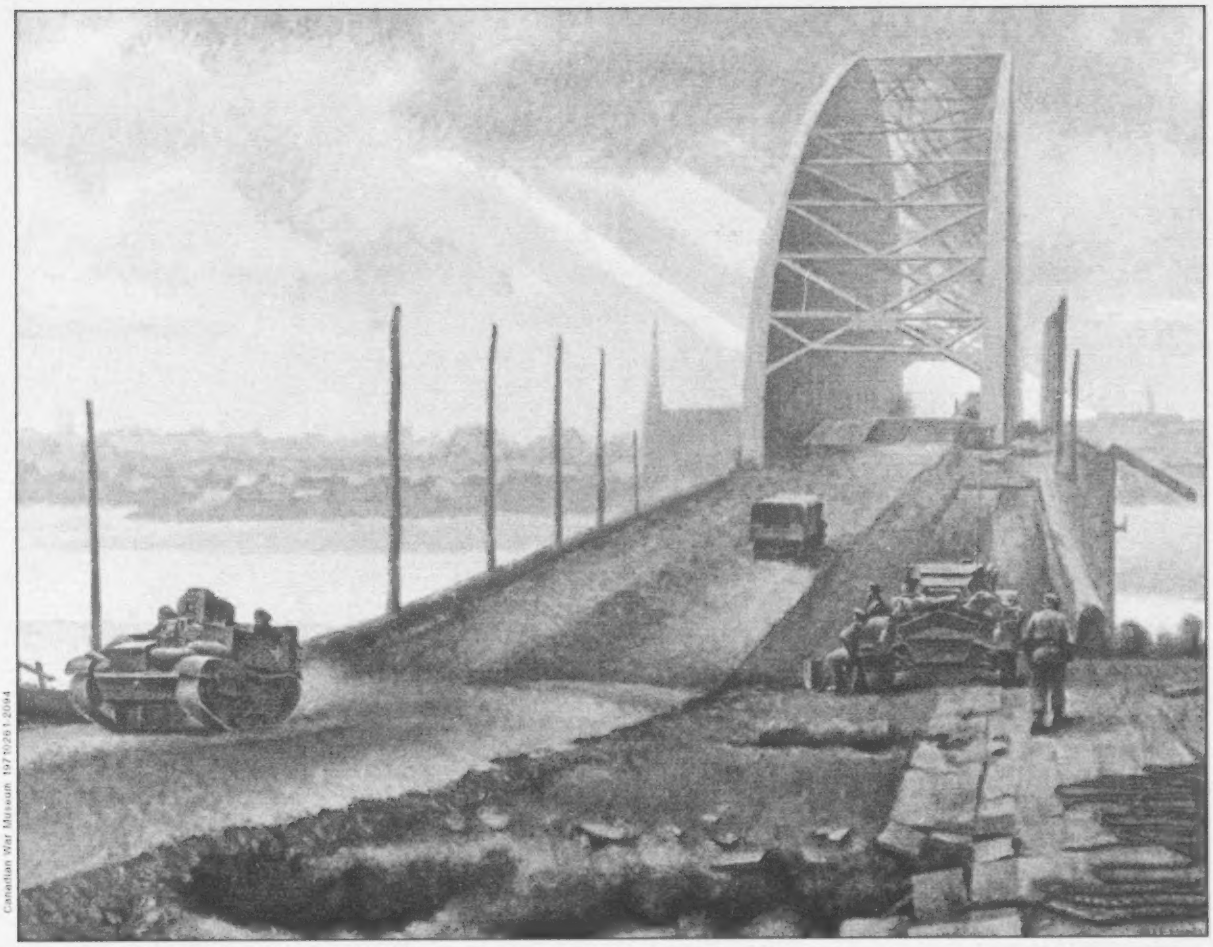
> "In the Pacific, the US Navy understood the physical realities of distance better than the Japanese."

Even before the invasion commenced, maps were provided to all forces involved, with over 300 million maps being printed throughout the campaign, until V-E Day in May 1945. A wide variety of maps were produced, both for the initial amphibious assault and for successive offensive operations. Map scales ranged from 1: 5000 to 1:2 million, and showed a wide variety of information to meet the needs of the different forces involved. After Dunkirk, it was determined that 1:100,000 and smaller scale maps were needed to cater for rapid movement of armoured forces.[47]

The air forces used 1:1 million and 1:2 million scales for air navigation. 1:500, 000 and 1:250,000 topographic air maps were also provided for more precise navigation closer to an intended target. Oblique perspective target maps were prepared for Bomber Command, while special information maps were provided for operations and briefing staff in charge of controlling the air forces.[48] Airborne units were issued maps on two scales, 1:25,000 and 1:12,500. These maps were for night landings and dropping zones, designed and coloured to show the ground as it would appear from the air at night.[49]

In addition to their normal nautical charts, the navies were provided special charts for beach approaches and naval gun support.[50] Beach maps at a scale of 1:5000 showed relevant information such as underwater obstacles, cliff heights, and the nature of the beach matériel. The beach gradients were provided as profiles in the margins of the assault maps, which were printed at a 1:12,500 scale. [51]

For the army, beach gradient and obstacle maps were provided, based upon information from air and amphibious reconnaissance sorties. Tactical overprints on large-scale sheets showed all features of German defences, such as batteries, pillboxes, and minefields. 'Goings' maps were also provided, showing different terrain



Canadian War Museum 19710261-2004

Nijmegen Bridge, Holland (1946), by Alex Colville

features to assist forward movement. Army commanders also had maps depicting town plans and through-ways. Civilian road maps, gazetteers, guide books, and relief models supplemented the intelligence products. However, artillery batteries were challenged with inadequate angle-of-sight data, caused by a lack of reliable height control and poor relief-depiction from the original French maps.[52]

Following the breakout from the beachhead, photo reconnaissance continued to provide invaluable intelligence with respect to enemy force locations and strengths, transportation target-location, and bomb damage assessment, as well as the selection of suitable river-crossing sites.[53] Airborne and armored forces had difficulties in penetrating the Norman *bocage*, which intelligence personnel failed to assess properly. The *bocage* consisted of small fenced fields, surrounded with thick hedgerows, which reduced the progress of armour, vehicles, and men to a crawl until a means was devised to push the hedgerows aside.[54]

The geographical and topographical sections continued to produce water and soil maps for Belgium, northwest France, and western Germany, as well as terrain 'goings' maps and potential airfield conditions. Vehicle movement data was collected to provide a check upon the accuracy of the 'goings' forecasts. The Rhine River and the River Meuse were studied in detail, and the latter was used for training, since it simulated conditions as closely as possible to those which were expected for the Rhine assault crossings.[55]

Conclusion

It is clear that a failure to ensure adequate geographic intelligence is made available and considered in planning military operations, from the strategic to the tactical, *can* and *does* result in troops encountering impenetrable or impassable terrain, amphibious assaults landing on impassable beaches, or vehicles becoming stuck on coral reefs, or airborne assaults dropping into water. Similarly, a lack of preparation for/consideration of hostile climates creates significant survival challenges which divert much needed resources away from the main mission of conducting combat operations.

In the Pacific, the US Navy understood the physical realities of distance better than the Japanese. Their innovations in carrier and amphibious war, necessitated by the loss of their heavy cruisers and battleships at Pearl Harbor, created forces that could reach over immense distances. By carrying independent land and air elements, the navy could advance and seize bases for their next

assault. Additionally, by having supply ships come *with* or *to* the fleet, unlike the Japanese who returned to the home islands for resupply, the US Navy could remain on station and on the attack.[56] Both forces required their planning and timings to be done months in advance, and both forces were required to stage their battles across thousands of square kilometres of ocean.[57]

Many of today's conflicts take place on foreign soil. The evolution of war machines continues to require corresponding improvements in geographic intelligence. Military satellites and unmanned aerial vehicles (UAVs) with their sophisticated sensors are able to provide geographic information at a level of detail that could only be imagined just half a century ago. Satellites and UAVs are capable of providing a real-time video feed to front line commanders and headquarters staff half a world away with equal ease. For soldiers on the ground, reconnaissance aids, such as night vision devices and global positioning systems (GPS) are available at the tactical level; precision guided missiles can be directed to their targets via cameras and either GPS or lasers held by soldiers *in situ*.

Geographic intelligence must remain an essential part of military planning at all levels, from the tactical decision of how to assault an enemy's position, to determining how to maneuver one's forces on the battlefield at the right time as part of an overall strategy for winning a war. However, it is equally important that military planners are able to fully comprehend the full complexities of geographical challenges at the tactical, operational, and strategic levels of the terrain, and climate factors where combat operations are planned.

CMJ

Canadian War Museum 19710261-6377

Ruins and rubble can become considerable impediments to battlefield progress. *Stormont, Dundas and Glengarry Highlanders Advancing into Caen, July 8, 1944*, by Orville Norman Fisher

NOTES

1 Harold A.Winters, *Battling the Elements: Weather and Terrain in the Conduct of War*, (London: Johns Hopkins Press, Ltd. 1998), p. 154. Quote from Field Marshal Bernard Montgomery in 1949.
2 Patrick O'Sullivan and Jesse W. Miller, Jr., *The Geography of Warfare*, (New York: St. Martin's Press, 1983), p 22.
3 *Ibid*, Chapter 2.
4 Winters, p. 221.
5 Brigadier J.G. Smyth, "Ground: The Dictator of Tactics," in *Military Affairs*, Vol. 8 (1944), p. 174.
6 Edward P.F. Rose, *Geology and Warfare: Examples of the Influence of Terrain and Geologists on Military Operations*, (Bath, United Kingdom: The Geological Society, 2000), pp. 121–122.
7 Major General Alfred Toppe, *Desert Warfare: German Experiences in World War II*, (Fort Leavenworth, Kansas: Combat Studies Institute, August 1991), pp. 3-11.
8 Dr. Allen F. Chew, "Fighting the Russians in Winter: Three Case Studies," in *The Leavenworth Papers No. 5*, (December 1981), pp 33–38. German troops had not received winter clothing by mid-December 1941, and they resorted to stealing clothing from corpses. General H. Guderian had lost twice as many men from frost as from enemy action. The German Army suffered 100,000 cases of frostbite, 14,000 requiring amputation, by 31 December 1941. By spring 1942, frostbite victims totaled over 250,000, with more than 90 percent of those being second- and third-degree cases. Also, there were thousands of cases of pneumonia, influenza, and trench foot. The generated manpower deficiency of dead/permanently disabled/missing totaled 625,000 men, only a portion of whom were replaced.
9 Winters, pp. 141–162. There was reference to the planners failing to discuss their plans with the Dutch.
10 *Ibid*, p. 221.
11 Countries varied with respect to their intelligence requirements. For example, in Japan, many commanders disdained the intelligence officers, the Germans had adversarial relations within their intelligence assets, and the Soviets ensured every person, civilian and military, provided intelligence. The Allies, although taking advantage of their intelligence staffs, did not utilize them to the same extent as did the Soviets.
12 Kirk H. Stone, "Geography's Wartime Service," in *Annals of the Association of American Geographers*, (March 1979), p. 92.
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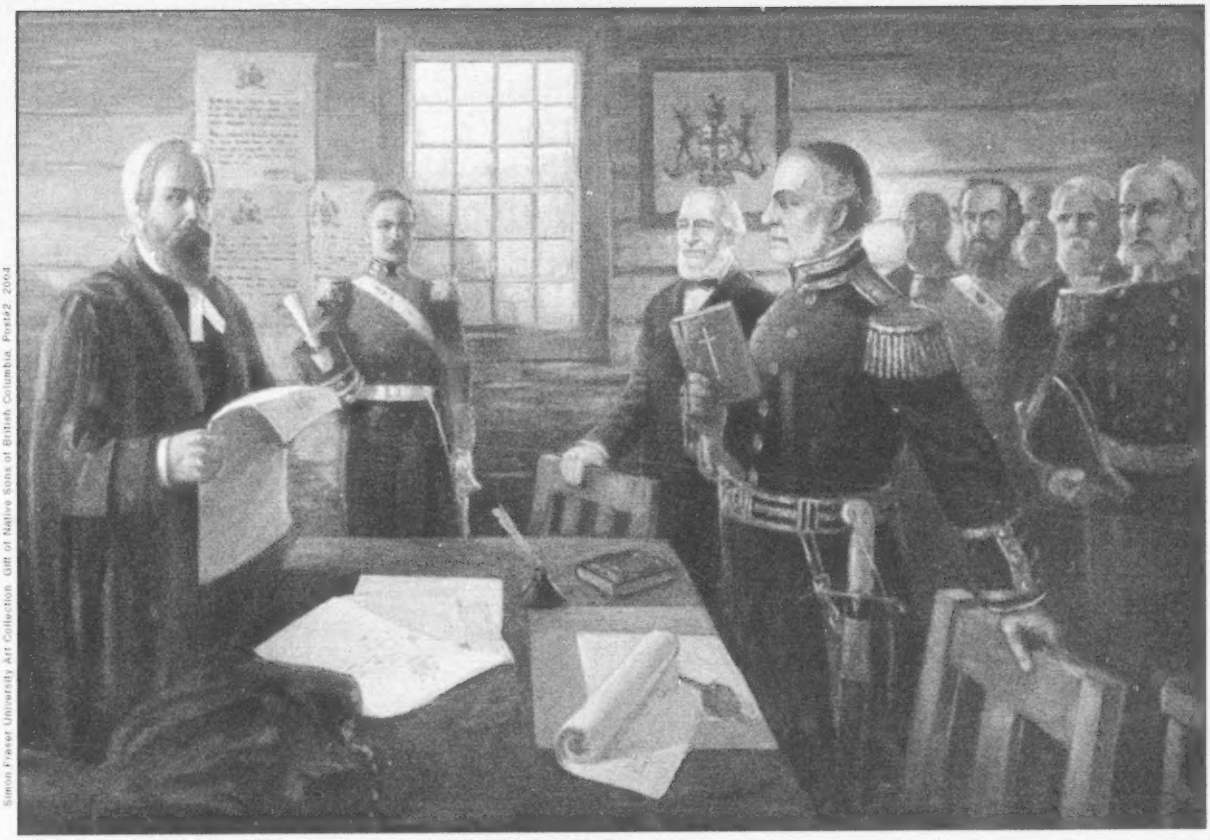
14 Peter Chasseaud, "Mapping for D-day: the Allied Landings in Normandy, 6 June 1944," in The *Cartographic Journal*, Vol. 38, No. 2 (December 2001), p.179; and O'Sullivan and Miller, p. 24.
15 A.W. Pearson, "Allied Military Model Making during World War II," in *Cartography and Geographic Information Science*, Vol. 29, No. 3 (2002), p. 241.
16 Edward P.F. Rose, Jonathan C. Clatworthy, and C. Paul Nathanail, "Specialist Maps Prepared by British Military Geologists for the D-Day Landings and Operations in Normandy, 1944," in *Cartographic Journal*, Vol. 43, No. 2 (July, 2006), p. 124.
17 Pearson, pp. 236–237.
18 Edward P.F. Rose, Dierk Wilig, "Specialist Maps Prepared by German Military Geologists for Operation Scalion: the Invasion of England Scheduled for September 1940," in *Cartographic Journal*, Vol. 43, No. 2 (June 2004), p. 32.
19 T.J. Barnes, "Geographical Intelligence: American Geographers and Research and Analysis in the Office of Strategic Services 1941–1945," in *Journal of Historical Geography*, Vol. 32, Issue 1 (January 2006), pp. 152-161.
20 Pearson, p. 228.
21 Williams, p. 150.
22 Barnes, pp. 154–157.
23 O'Sullivan, p. 30.
24 See Pearson's article for photographs of models.
25 Pearson, pp. 229–234.
26 *Ibid*, pp. 232–236.
27 *Ibid*, p. 241.
28 For pictures and examples, please see the two following articles: Rose, Clatworthy, and Nathanail, pp. 117–143; and Rose and Wilig, pp. 13–35.
29 Chasseaud, p. 178.
30 *Ibid*, pp. 55–91.
31 'Goings' or 'Trafficability' maps were used to indicate the comparative ease of movement for vehicles over various terrain, such as fields or swamps.
32 Rose and Wilig, p. 16.
33 Barbara A. Bond, "Silk Maps: the Story of MI9's Excursion into the World of Cartography 1939–1945," in *Cartographic Journal*, Vol. 21, No. 2 (December 1984), p. 141.
34 *Ibid*, pp. 141–142.
35 *Ibid*, p. 142.
36 Williamson Murray, "Some Thoughts on War and Geography," in *Journal of Strategic Studies*, Vol. 22, No. 2-3, (1999), p. 204.
37 Rose, Clatworthy, and Nathanail, p.118.
38 Williams, p. 150.
39 Rose, p. 124.
40 Rose, Clatworthy, and Nathanail, p. 125.
41 *Ibid*, p. 124.
42 Chasseaud, pp. 177–178.
43 Winters, p. 23.
44 *Ibid*, p. 25.
45 *Ibid*. An additional favourable condition would have been several days of good weather post-invasion to facilitate the build-up of men and matériel.
46 Commander L. Brehm, "Weather: Operational Considerations on the Battlefield," Research Paper (20 May 1991): pp. 3–7.
47 Chasseaud, pp. 168–178.
48 *Ibid*.
49 *Ibid*.
50 *Ibid*.
51 *Ibid*.
52 *Ibid*.
53 *Ibid*, p. 180.
54 O'Sullivan, p. 20.
55 Rose, Clatworthy, and Nathanail, p. 120.
56 Murray, pp 209–210.
57 Winters, p. 231.



James Douglas Taking the Oath as First Governor of BC, AD 1858.1925. Oil on canvas.

The Colonial Militia of Vancouver Island and British Columbia 1853–1871

by Adam Goulet

Master Corporal Adam Goulet *has been a Reserve Medical Assistant with 11 (Victoria) Field Ambulance since 1999. Currently enrolled as a business student at Camosun College, and working at TD Canada Trust, Master Corporal Goulet has twice deployed to Afghanistan under Op* Athena *(February – September 2008, and September 2009 – May 2010).*

Introduction

With more than 27,000 kilometres of coastline to protect, the defence of the province of British Columbia has always relied heavily upon naval assets, be they of the British Royal Navy (until 1910) or of the Royal Canadian Navy, and upon locally- raised militias. In terms of land forces, British Columbia today is home to a Canadian Brigade Group consisting of 12 reserve regiments of various types, as well as a host of Ranger patrols. All volunteers, the men and women who comprise these units carry on traditions that started back when this province was two separate colonies, those of Vancouver Island and of mainland British Columbia. Some traditions are kept to honour a regiment's members who have since passed, while others are kept in order to maintain a connection to historical units, a connection officially denied to modern regiments. The reasons behind this lack of continuity in traditions are directly related to the support these units have received. Too often in our history we have had need of highly trained, professional soldiers, only to find those skilled individuals underpaid and ill-equipped, but they are nevertheless ready to serve when required. This topic has not been given sufficient attention by the academic community in recent memory, and, given the increased activity of today's Canadian Armed Forces Reserves in British Columbia, a closer look is warranted.

It is well-documented that, throughout British North America, volunteer militia units were widely used in the defence of colonies across the continent. In Britain, the Volunteer Rifle Corps movement was very popular with the masses.[1] Therefore, it is not surprising that, when emigrants from these places arrived in the colonies of mainland British Columbia and Vancouver Island, they should bring with them those traditions. From 1853 to 1871, seven different militia units were periodically formed and disbanded between these two colonies, and each one was raised, either for a specific purpose, or in response to a specific threat, real or perceived.

The Victoria Voltigeurs came first. Initially raised by soon-to-be Governor James Douglas in 1851, they were a small force of Métis – the children of French-Canadians and Iroquois – voyageurs formerly in the employ of the Hudson's Bay Company. They were each offered a 20-acre plot of land where the Colquitz River empties into Portage Inlet in exchange for signing up, and they were paid and fed for their periods of service.[2] They were also issued trade guns and a company uniform. The uniform was not of a traditional European design, but consisted instead of a red woolen sash tied around a blue Canadian capote. (A long cloak with a hood ~ Ed.)[3] The intent was that the militia be used as an armed force to help the governor enforce the laws of the colony. The Voltigeurs' best known example of this was in response to the murder of a Peter Brown on 5 November 1852. This shepherd, who tended the Hudson's Bay Company's flock on Christmas Hill, was killed by a Cowichan warrior and the son of a Nanaimo chief. It took approximately two months for the investigation to identify the murderers and for Governor Douglas to organize the expedition that would see justice done. With a mixed company of sailors and marines from HMS *Thetis*, along with a number of Voltigeurs, Douglas sailed to Cowichan Bay and Nanaimo where they apprehended the culprits, held the historic trial on board the steamer *Beaver*, and hanged the two young men at the entrance to Nanaimo Harbour, a place now known as Gallows Point.[4] Governor Douglas was most pleased with the performance of his militia, noting in a letter to John Tod, the senior member of the Legislative Council of Vancouver Island: "...not only by their [the sailors and marines of HMS *Thetis*] steadiness and discipline, but also by their promptitude and alacrity in the field, and I am happy to say that our little corps of colonial voltigeurs [sic] imitated their noble example."[5]

DND Reconstruction by Ron Volstad

A Victoria Voltigeur, 1851–1858.

Approximately three years later, the Voltigeurs would be used for another similar expedition to mete out colonial justice. As the non-native population of the colony grew, the need for protection from the local aboriginals became less prevalent, and in March 1858, the Victoria Voltigeurs were disbanded, only to have another militia unit 'stand up' a mere two years later.

The Pig War that began in 1859 on San Juan Island reminded the colonists of Vancouver Island that, without their own military, the Royal Navy could only do so much to defend them, assuming the fleet was even in port. After having been denied admittance to the local fire brigades due to racism, Victoria's black community decided to form a volunteer militia unit to help protect the colony. Governor Douglas was keen to accept a volunteer force that supported itself through the sponsorship of the wealthy black merchant, Mifflin Gibbs. Recruiting began in the spring of 1860, and with 40–50 black men enlisted, the Victoria Pioneer Rifle Corps was born. In July 1861, having risen swiftly in popularity, the Corps was officially sworn in. The men of the 'African Rifles,' as they became known, built their own drill hall on Yates Street, and even chipped in to pay for a drill sergeant from the Royal Navy to train them. Ordered directly from England, their uniforms consisted of green jackets with orange facings in the style of the British rifleman. However, arming the African Rifles was an ongoing problem. They were only able to acquire the use of second-hand flintlocks from the Hudson's Bay Company, and, despite repeated requests to the governor, were not issued rifles until 1864.

Image A-01401 courtesy of Royal BC Museum, BC Archives

Governor Arthur Edward Kennedy. Photo by G.R. Fardon, circa 1864–1866.

With the changing of Governors from Douglas to Arthur Kennedy, the Victoria Pioneer Rifle Corps was granted the loan of a number of rifles in order that they might practice with, and use them, in the parade welcoming the new governor. Unfortunately, due to racism demonstrated by the parade committee, the African Rifles was denied the right to march in the parade. A week later, when the Corps presented itself to the new governor, they were met with a very politic answer, meant to acknowledge their place in the community without committing to support them in the future, for fear of losing favour with the racist factions of the colony. Nearly two years after the parade, the government asked for their rifles back, and the Corps returned them, along with a notice. "...the VPRC had not disbanded, but had not met for drill because of government discouragement and the depletion of its ranks by Blacks returning to the United States."[6]

During the period the African Rifles were getting started, there was another, short-lived volunteer unit on Vancouver Island. Due

Image G-04839 courtesy of Royal BC Museum, BC Archives

Original uniform of the Victoria Volunteer Rifle Corps, 1862.

possibly to the fact that the African Rifles only accepted black volunteers, a white militia unit formed in the summer of 1861 called the Vancouver Island Volunteer Rifle Corps. This second corps collapsed after only a few short months of existence, allegedly due to internal fighting.[7]

In May 1864, Governor Kennedy created the Victoria Volunteer Rifle Corps. Paid for by the government, this latest iteration of militia organization on Vancouver Island would last until British Columbia joined Confederation in 1871. In this era, the colours of military uniforms were essential to warfare. They allowed for easy identification of, not only nationality, but also of individual regiments or formations within a given nation's military. Initially adopting a uniform similar to the Austrian infantry (white and blue), the Corps' choice was widely criticized by the public until they changed it to the more familiar green and black of the British rifle regiments.[8]

Meanwhile, in the mainland colony of British Columbia, the New Westminster Volunteer Rifles, comprised partially of former Royal Engineers, was created in November 1863. As a unit, the Royal Engineers were repatriating back to England, and even though 130 of the 165 officers and men elected to stay behind,[9] the citizens of British Columbia were concerned with respect to the security situation. With the pressure of Americans pushing northwards in search of gold, and the constant problems with local First Nations people, the colonists put forward a petition to the governor for the formation of a militia unit. The New Westminster Volunteer Rifle Corps (NWVRC) first saw action in the late-spring of 1865. Objecting to the construction of a highway from Bute Inlet to BC's interior by way of the Chilcotin plateau, members of the Chilcotin First Nations began raiding and harassing the project, and they murdered 13 of the project's personnel. A joint operation, led by Captain Chartres Brew of the NWVRC and Governor Frederick

Image G-04912 courtesy of Royal BC Museum, BC Archives

The second uniform adopted by the Victorias.

Seymour, comprised of both land and sea elements (including the NWVRC, the Hyack Fire Brigade, and HMS *Sutlej*), set forth and spent several months putting down the Chilcotin uprising. In the end, five First Nations people were identified as the ringleaders. They were subsequently tried and put to death by hanging in Quesnel.

Accession # 305. Courtesy of the New Westminster Public Library

Rifle match at New Westminster, 1865.

During the summer of 1866, and in response to increased fears of Fenian invasions on the west coast, the Seymour Artillery Company was stood up in New Westminster. The Fenians were a fraternity of Irish nationals in North America. After the American Civil War, the Fenians made several attempts to invade British North America, always with the ultimate goal of winning independence for Ireland. Also, numbering a few former Royal Engineers in their ranks, and named in honour of Governor Seymour, the artillery company was intended to serve in support of the NWVRC. However, they would not receive their main armament until more than a year later with the arrival of the HMS *Sparrowhawk*. In October 1867, the artillery company received two brass, muzzle loading, 24-pound field guns, and the gunners began drilling with their new equipment weekly.[10] As New Westminster was the capital of the colony, the local artillery company was also responsible for firing all official and ceremonial salutes, the Queen's birthday being a prime example, thus demonstrating just one manner in which the colonial militia was an important part of the social scene.

Footprints in the Community

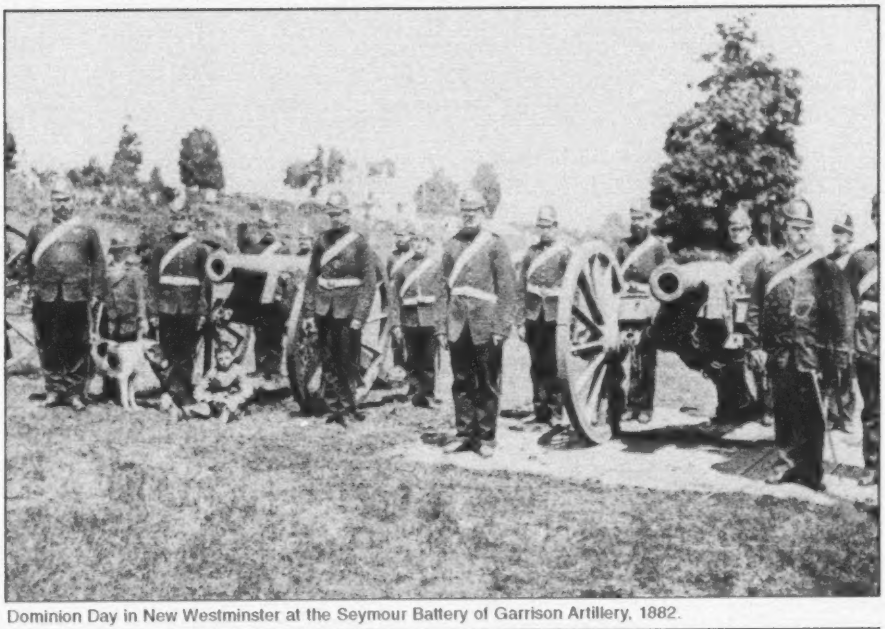
The presence of a militia unit in a given city or town was much more evident in the colonies than it is today. That was due, in part, to the size of population centres of the era. However, it is more relevant because of the footprints the militia units implanted upon the local social scene. Colonial militia units frequently served as the social hub for a given community, be it geographical or demographical, frequently *cutting across* as much as *reinforcing* socio-economic classes through a given militia unit's members willingness to serve.

With few sources of public entertainment, the colonial citizens of the late-1800s understandably attended whatever social functions presented themselves. Public holidays frequently meant a public display of soldiering, including drill and gunfire, as well as providing the potential for a mock battle between opposing sides. It was not uncommon to have the local Vancouver Island militia unit defend a position on Beacon Hill, while a contingent of Royal Marines would launch an amphibious assault. To the soldiers it was important training, but to the action-starved public, it was amazing entertainment. As illustrated in this article from the *British Colonist*, dated 26 May 1866, the author describes the events surrounding the Queen's birthday celebrations:

> "…while a number of persons wended their way to Beacon Hill to witness THE VOLUNTEER REVIEW. At 11 o'clock the Victoria Volunteer Rifle Corps, under the command of Capt. Young of No. 2 Company, marched to Beacon Hill headed by the band for inspection by the Governor. Shortly afterwards His Excellency rode up and was saluted by the Corps during the inspection. The Volunteers then broke into column of four companies and marched past in quick time which was done with great precision. The corps next performed sundry evolutions advancing in line, volley firing by companies and in line, etc. After this His Excellency addressed the corps complimenting them on their marked improvement since the last inspection which was due to their attention to drill and the exertions of their Adjutant. He gave the especial credit for their marching and volley firing. Three cheers were proposed by His Excellency for the Queen, he giving the time, and the Volunteers responding heartily. The corps then formed and marched to town. His Excellency's family and a large number of spectators were on the ground."

Beyond displays of war, the militia units also provided a source of more refined distraction. The drill halls of militia units frequently served as both ballrooms and community centres. They provided a large, open, indoor area that could be used in inclement weather when such spaces were not in ready supply. They were often used for everything, from balls and fancy dress dinners, to wedding receptions and fundraisers.

The Victoria Pioneer Rifle Corps was quite well known and popular for its social events. The ladies of the black community of Vancouver Island were constantly holding fundraisers for the upkeep of the unit (as the unit was not regularly funded by the government). The community was also known for holding an annual celebration on the 1st of August in honour of the emancipation of slaves in the



Accession # 98. Courtesy of the New Westminster Public Library.

Dominion Day in New Westminster at the Seymour Battery of Garrison Artillery, 1882.

British West Indies.[11] The officers of the African Rifles were even known to make social calls on high-profile visitors to the colony, and these were well received, for the most part.[12]

Despite maintaining a high public profile, most militia units were constantly running into financial problems. Many prominent citizens were known to buy uniforms and/or equipment out of their own pockets, just to get things started, or to keep things going. The members of a unit were known to pool their resources, sometimes contributing as much as fifty cents or more just to pay for a drill instructor to teach them their craft.[13] Therefore, militia units were not *always* hard up for cash.

Surviving Peace

Every few years, new threats emerged: unlawful First Nations, war with the Americans (Pig War, Civil War, and so on), the influx of American gold miners, the threat of a Fenian invasion… all perfectly valid reasons for the colonists of the west coast to fear for their safety and sovereignty. During those periods of danger, the ranks of the volunteer militias would swell with overwhelming support by virtue of volunteers from the communities they called home. At the same time, their colonial governments would suddenly become quite forthcoming with financial support in keeping with the mentality of their citizens. The problem, however, was that one cannot simply will a trained fighting force into existence overnight by 'throwing money' at volunteers.

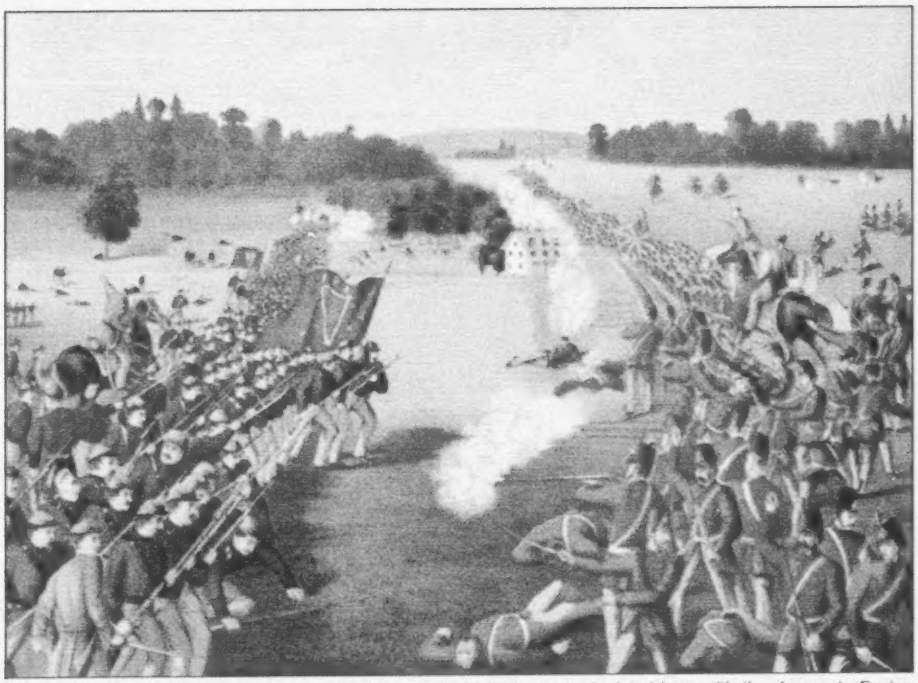
Too often, the critics commenting upon colonial defence would come to the same conclusion that the militia units were not up to the task of defending their respective colonies, despite all their best intentions. The following is an excerpt from an article in the *British Colonist*, dated 4 January 1872 and entitled "Fenians! War Ships!! Police!!!", in which the author is commenting on the need to rely upon the Royal Navy to defend the colony from the threat of a Fenian invasion, a threat that had been brought to the attention of the governor six days earlier:

> "It is true that there is a company of Rifle Volunteers, under the efficient command of Captain Rosco; and it is equally indisputable that the company includes several good shots. But it is problematical to what extent it would be safe to rely upon this force as a means of repelling a Fenian invasion. If we are correctly informed that it has lapsed into a torpid state, it would, perhaps, be wisest not to count upon it at all as a means of defence."[14]

During the lulls between threats, the views of the colonists tended to return toward apathy, and the government's view mirrored this attitude. Funding would disappear, and militia training and the maintenance of their equipment would deteriorate right along with it. Surprisingly, while the number of volunteers did drop, there were always those few willing to serve, even at their own expense at times. Why would they do such a thing? Whether racially, economically, or politically motivated, the peacetime neglect of these militia units by their governments was blatant and short-sighted, but that did not stop some individuals from still serving by whatever means necessary. One can only presume that it may have been out of a patriotic need to serve, or perhaps the desire to cling to the dazzle of fancy uniforms and parades, or perhaps a combination thereof. The one thing that is certain is that when the call came to serve, they answered, in spite of critics who decried them as unable to contribute substantially to colonial defence. Not until the colonies of Vancouver Island and British Columbia amalgamated and joined Confederation did the militia units of the west coast gain a measure of permanency.

Confederation and the Cusp of Canadian Military Eras

On 16 October 1871, almost three months after British Columbia joined confederation, Militia District No. 11 was established by the federal government when it assumed responsibility for defence. The existing militia units were disbanded and reorganized, and new units were permanently established with funding from Ottawa.[15,16] While few present-day reserve regiments claim to be able to trace their lineage back to the colonial era, these claims have been difficult to verify as a direct result of the fact that the units referred to were officially disbanded. Further study into both individual unit lineage claims and national trends therein, as well as the possible need to re-define Canadian Armed Forces guidelines on this subject is warranted, given this country's unique military history. Regardless of the 'official' continuity between colonial and post-confederation units, there are still many parallels one can draw from past to present.



Library and Archives Canada Accession # 1940-35-1

The Fenian threat to the west did not materialize as it did in the east, depicted here with the desperate Fenian charge near Ridgeway Station in Upper Canada, 2 June 1866.

Within their community, militia regiments often served the colony by contributing more than just protection. Their training was occasionally a source of entertainment, and their drill halls routinely became integral parts of colonial social life, which included the fundraising necessary for their existence. Today, many reserve units make a concerted effort to continue to contribute to their communities beyond defence. On Vancouver Island, the island's reserve medical unit, 11 (Victoria) Field Ambulance, annually supports the British Columbia Boomer's Ride by providing medical coverage, logistical support, and many riders. The funds raised by the ride, and an annual gala dinner held for Boomer's Legacy, go toward those in need in Afghanistan, Kosovo, and Jamaica, thus contributing to the well-being of the global community.[17]

As new dangers arose, be they aboriginal, American, or Fenian, the colonists rallied behind their militias, swelling their ranks, bringing with them funding and the ardent fervor of patriotism – only to be withdrawn when the threat of the moment had passed. The public's opinion of the militia still waxes and wanes, depending upon local and world events. When disaster strikes at home, their members are the country's beloved warriors and servants, vaunted above all others as selfless, heroic volunteers risking their lives to protect their fellow Canadians from fires, floods, and blizzards alike – until the fires are gone, the waters recede, and the storms abate, and reservists then go back to being students and employees. And yet still, as was the case in the colonial era, men (and now women), regardless of age, ethnicity, and religious affiliation, continue to enlist in the Canadian Forces Reserves.

Conclusion

It is true that today there are many more materialistic reasons for joining the Reserves, such as money for tuition, the allure of modern weapons, and the opportunity for free travel. However, those who make a career of the reserves must have some other reasons, and one can only surmise as to what those reasons might be. Is it the pomp and circumstance of traditional formal dinners, a rarity in today's society? Is it the desire to cling to memories of past operations and exercises? Is it a search for glory and recognition in one's spare time? Or is it as pure and simple as the patriotic desire to serve one's country in whatever capacity one can? Whatever the reason, be it selfish or altruistic, one thing is certain. We as a society ought to support the Reserves regardless of politics or economics. Give their members the consistent resources they need to protect us, and honour them by allowing them to trace their regimental lineages back to their colonial beginnings.

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NOTES

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12 Dorothy Blakey Smith (ed.), *Lady Franklin Visits the Pacific Northwest, February to April 1861, April to July 1870* (Victoria, BC: Provincial Archives of British Columbia Memoir No. XI, 1974).
13 The Royal Westminster Regiment, at http://www.army.gc.ca/lf/aol/1430004400001719/index-Eng.html.
14 Alhough it is inferred in this article that Captain Rosco was the commanding officer of the Victoria Volunteer Rifle Corps, I was unable to find any corroborating evidence to this effect.
15 Reginald H. Roy, "The Early Militia and Defence of British Columbia, 1871–1885," in *The British Columbia Historical Quarterly*, Vol. XVIII (January-April, 1954), pp. 1–28.
16 D.M. Schurman, "Esquimalt: Defence Problem, 1865–1887," in *The British Columbia Historical Quarterly*, Vol. XIX (January-April, 1955), pp. 57–69.
17 For more information on Boomer Rides and Boomer's Legacy, see http://www.boomerslegacy.ca/about/history-and-goals/.

Canadian War Museum 19760261-0056

Over the Top, Neuville-Vitasse, by Alfred Bastien. 1918.

The Duty to Remember is an Integral Part of Bilateral Relations

by Marcel Cloutier

During the large-scale commemorations of the First World War that will be held from 2014 to 2018, substantial media attention will be focused on Canada's participation in that conflict. The events to be held on 6 June 2014 to mark the 70th anniversary of the D Day landings in Normandy will be an opportunity for European and Canadian media to honour Canada's role in the liberation of Europe. Although these commemorations are held every hear, it may be the last opportunity for the surviving veterans who participated in the Normandy landings in 1944 to attend this decennial event. For that reason, media interest should be even keener this year. The activities will generate a flow of information that will enable many Canadians to learn about that part of our history, much of which has faded from public consciousness in this country. Some will say that our lack of memory of the world wars of the 20th century is due to the fact that they did not take place on Canadian soil. That was fortunate for us, but it has surely contributed to Canadians' general lack of interest in those wars. Apart from the annual media coverage of Remembrance Day ceremonies across Canada, we hear very little about the sacrifices made by Canadian soldiers in the two world wars. We prefer to discuss current and potential conflicts rather than the past, and that leads us to wonder what place those older conflicts should hold in our memory. Yes, the major conflicts of the 20th century took place far away, but does that mean we should forget them? And what role does remembering the past play in international relations? As part of my duties as Deputy Defence Attaché in Paris, two of the countries I am responsible for maintaining bilateral relations with are Belgium and France. Both countries suffered enormously during the two world wars. In both of those wars, Canada played a role in liberating the Belgian and French people. Clearly, that contribution was made in the past, but does that mean we must now turn our attention to potential conflicts that may erupt in the future?

Winston Churchill said that those who cannot remember the past are destined to repeat it. Following that logic, we must remember the past. We have a *duty of remembrance*, which means a need and an obligation to remember. These ideas are certainly appealing, but what do they really mean? And why should we heed their call?

While preparing for my assignment at the Canadian Embassy in France, I learned that the role of a defence attaché was to promote bilateral defence relations between Canada and the countries for which I was responsible. I was also told that I would often be invited, especially in France and Belgium, to take part in events held to commemorate the two world wars. I was informed that my work concerning the collective memory of those conflicts was important, but that it was secondary to my primary task, which was to promote relations between our respective armed forces. However, not long after I took up my position, I realized that, because of the large number of commemoration activity invitations that we received, it was absolutely essential for the Canadian authorities in

Photo courtesy by Ville de Sacy-le-Grand

The author at Sacy-le-Grand, France, 25 June 2011.

those countries to attend in order to maintain harmonious relations between the various regions and the embassy – and, by extension, between those countries and Canada. Members and high-ranking officers of the host countries' armed forces always participated in those ceremonies. It is therefore important, even essential, that the official representatives of the Canadian Armed Forces attend the ceremonies and take an active part in them. Also, in France, where officials often hold more than one position at different levels of government, it is not unusual to receive an invitation from the mayor of a town who is also a member of the National Assembly, a member of the General Council of a department, a senator or even a minister in the government. For that reason alone, Canada's participation is important, and refusing to take part in the ceremonies could have negative repercussions for both countries.

I had not imagined that, from the time I arrived, the duty to remember would be so absorbing and would require such a big commitment on my part. For example, in all the cities, all the towns and villages and all the communes liberated by the Canadians in the days and weeks following 6 June 1944, the liberation has been commemorated annually ever since. The Canadian authorities in the country, especially the ambassador and the two defence attachés, receive a constant stream of invitations to take part in those ceremonies. Their role is to represent Canada, the nation so dear to the hearts of the French – the nation that, together with other Allies, freed them from Nazi tyranny. Something I have heard said over and over again during the many ceremonies I have had the honour to participate in is "What would have become of us if you, the Canadians, had not come to liberate us?" And the same gratitude is expressed for our participation in the First World War. Of course, there are very few people still alive who witnessed the Allied sacrifice in that terrible conflict. But it is impressive to see current generations' devotion to remembering how nations as far away as Canada sent courageous troops to liberate their people in a Europe that had been torn apart by a horrific conflict. Canadians have a good reputation and are welcomed warmly in France and Belgium, and that is due in part to the role played by Canada when Europe was in need. The fact that people in Europe remember the Canadians' sacrifice with such surprising enthusiasm all these decades later reflects well on everyone involved and is certainly worthy of mention.

I remember a ceremony that was held on 25 June 2011 in Sacy le Grand, France, to unveil a marker in honour of a Canadian pilot who was shot down on 3 January 1944 while flying his Typhoon. The ceremony, which took place on a sunny Saturday afternoon, was attended by about 400 of the 1,000 residents of the town. Among them were an impressive number of children and teenagers, who were surprisingly attentive to what was going on even though they could certainly have been doing other things on that fine summer day than attending a very formal ceremony. I wonder whether such a ceremony, if it were held in Canada, would draw so many people. To ask the question is to answer it. During the reception following the ceremony, many people shared anecdotes about what the townspeople had gone through during the war. One 90 year-old woman told me that she had taken care of Allied airmen who had been shot down and smuggled them through France to Spain, then arranged for them to return to England. A 78 year-old man related the story of how he and his father had been the first to arrive at the spot where an Allied fighter aircraft had crashed, and how they hid the pilot for weeks until the Resistance arrived to take charge and make sure he got back to England. Over

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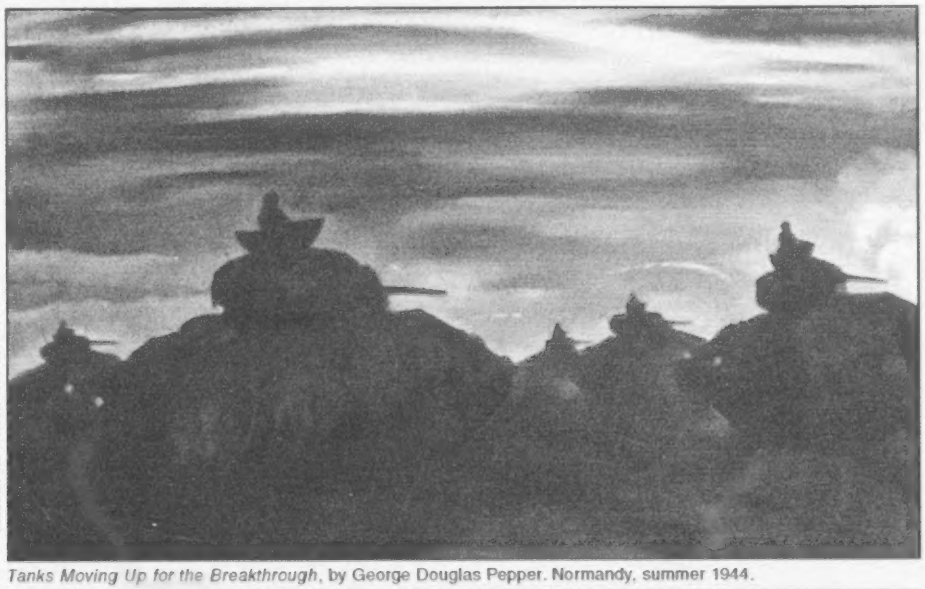
the years, many people have shared stories like this with me or my colleagues at the embassy. Being able to tell them to Canadians was a source of great pride for the European people and a way to express their deep gratitude toward Canada.

Some will say that the time has come to turn the page and think about the future instead of holding on to these old collective memories, that we should look forward rather than back. But, in the words of Winston Churchill, "A country that forgets its past has no future." And so, in French and Belgian communities, the people continue to pay tribute, intensely and sincerely, to the exploits and sacrifices of their liberators. If Canada showed indifference to these tributes, it would tarnish the image of our country and of Canadians. It might also damage bilateral relations in the long term. If only more Canadians of all ages, when travelling in Europe, visited the historic sites such as Vimy, Passchendaele, Juno Beach, and Beaumont Hamel, to name just a few, they would gain a better understanding of what led to those conflicts and of Canada's commitment in that part of the world. Those conflicts marked the local people so much that they still feel the need to talk about them – particularly with people from the country that liberated them.

Canada's participation in remembrance ceremonies, solemn as they are, is essential. Not to attend would show serious disrespect for the sacrifice of our brave soldiers. Moreover, our absence would have a definite impact on the people of Europe and their perception of Canadians. In June 1944, in the aftermath of the Normandy landings, the people expressed their heartfelt gratitude to the Allies. That gratitude still runs deep today. I often end my speeches at remembrance ceremonies with these words, which are more appropriate now than ever: "Thank you for remembering."

Lieutenant Colonel Marcel Cloutier *is the Deputy Defence Attaché at the Canadian Embassy in Paris. He is responsible for bilateral defence relations with Belgium, France, Spain, Luxembourg and Portugal.*



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Tanks Moving Up for the Breakthrough, by George Douglas Pepper. Normandy, summer 1944.

DND photo ET2014-7068-02 by Corporal Michael Bastien

Whatever happened to mission command in the CAF?

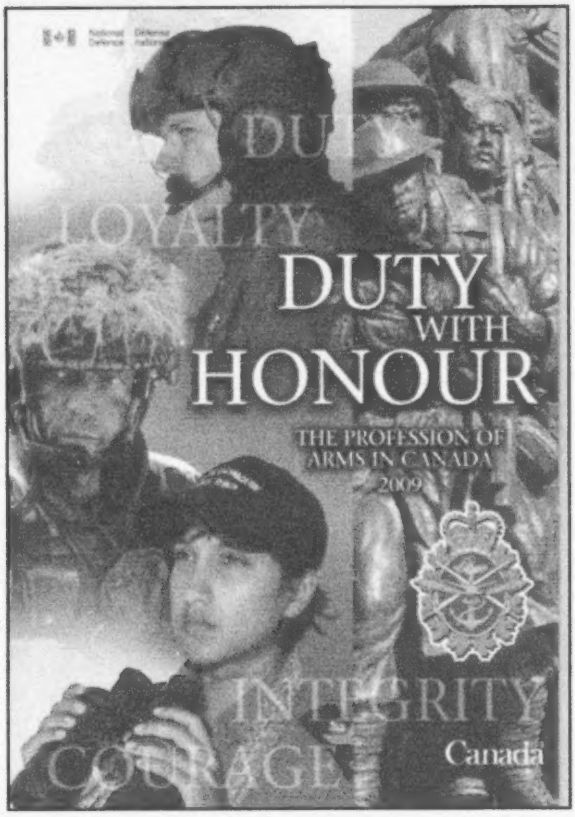
by Allan English

The Canadian Armed Forces (CAF) has arguably the best leadership and profession of arms doctrine in the world. Unlike the sterile doctrine manuals and turgid theoretical tomes that proliferate in this field, *Duty with Honour* and *Leadership in the Canadian Forces: Conceptual Foundations* deftly combine theory and the experience of the Canadian military to provide essential guidance on professional practice for leaders in the CAF.[1]

Why then have so many CAF members complained that this guidance is not being followed? Over the past year, I have heard an increasing number of complaints, from corporals to brigadier generals, that they are being constantly 'micromanaged,' and that their superiors are not following the tenets of mission command and distributed leadership, two key concepts in CAF leadership doctrine. Not all leaders are acting this way, but the situation now seems to be more acute than in the recent past. Therefore, I offer the following thoughts, based upon my 25 years of experience in the CAF and on my 25 years teaching subjects related to leadership, command, and ethics and the military profession at both Royal Military College of Canada and the Canadian Forces College.

There are many reasons why the tenets of mission command and distributed leadership are not being followed today, but two that stand out for me are that: 1) in the CAF, like all armed forces winding down from intensive combat operations and with training budgets being cut, empty time is often filled with what Israeli Defence Force psychologist Ben Shalit called formal or "chickenshit" activities instead of functional activities, i.e., those related to the task at hand,[2] and 2) budget cuts have led to 'fiscal responsibility' being used as a justification for extreme forms of micromanagement.

Some may ask if it really matters what leadership philosophy guides military leaders. CAF doctrine answers this question clearly, telling us that a principal reason for practising mission command and distributed leadership is that in the modern world, "accelerated decision-making, initiative, and co-ordinated independent action" are required "at increasingly lower levels of responsibility and authority." CAF doctrine also advocates a values-based leadership approach, which discourages authoritarian or directive leadership styles, and cultivates and reinforces a transformational style of leadership characterized by "exemplary personal commitment to the mission, motivating others through ideas and ideals, and individualized consideration of others."[3]



Canadian Forces Leadership Institute

Successful transformational leadership occurs when "people are encouraged to engage in broad inquiry, to think critically, and to venture and debate new ideas in the interests of contributing to collective effectiveness."[4] And transformational leadership is optimized when leaders ensure that all members of the CAF can lead, that leadership is a function which is shared, that subordinates are provided with maximum freedom of action to accomplish their missions consistent with clearly articulated commander's intent, and that leaders provide opportunities for subordinates' leadership development, as well as to create an 'open culture' that supports all of these activities.[5]

In the past, leaders who have used inappropriate techniques, such as group punishment; failing to keep subordinates adequately informed; failing to engage subordinates actively with organizational goals; inundating subordinates with changing directives and rules; and using regulations and technicalities to avoid responsibility, have faced combat refusals, disobedience, and, in extreme cases, have been attacked by their own troops.[6] To help CAF members avoid these outcomes, *Leadership in the Canadian Forces: Conceptual Foundations* has distilled best practices from theory and past experience, while providing historical examples of exemplary leadership. While these documents are "the primary source for the development of leader training and education programmes" in the CAF,[7] it is essential for military professionals, as with other professionals, to learn how to apply best practices in their daily work. This can be done in the context of the CAF's Professional Development System in the Self-Development phase by using available resources (a number of which are cited below)

DND photo IS2014-0111-07 by Corporal Eric Grant

to identify best practices to add to one's own repertoire of leadership techniques, and then to apply them in the Experience phase.[8]

The application of these best practices can be combined with leaders' responsibility to fully develop subordinates' potential, by giving them opportunities to practice appropriate leadership tasks under supervision, because if you attempt to use mission command with "people who don't really understand it," you risk chaos.[9] Subordinates' capabilities for independent action should be developed by giving them "as much authority as they can competently and responsibly handle," and sometimes "very challenging duties and correspondingly greater authority (so-called 'stretch' assignments)."[10]

For example, instead of time-wasting 'chickenshit' activities, leaders could conduct small group unit-level professional development initiatives focussed upon improving subordinates' leadership capabilities. Leaders could discuss their goals with subordinates and how they can work together to achieve them; solicit feedback; engage subordinates in problem solving to address challenges the unit faces; delegate, where subordinates are able, portions of the leadership task; and, where subordinates are *not yet* able, develop their capabilities. Throughout this process, subordinates' performance must be "monitored, energized, re-directed, facilitated, or corrected as necessary."[11] The leader's focus should be upon fostering values-based leadership by monitoring outcomes, not micromanaging process, i.e., assign a task to achieve a balanced budget within the rules, rather than scrutinizing every single expense, no matter how minor.

None of what I have said is new. However, since 'institutional memory' is only as good as the training and professional education that each generation receives, it is worth repeating these best practices from time to time, lest they be forgotten.

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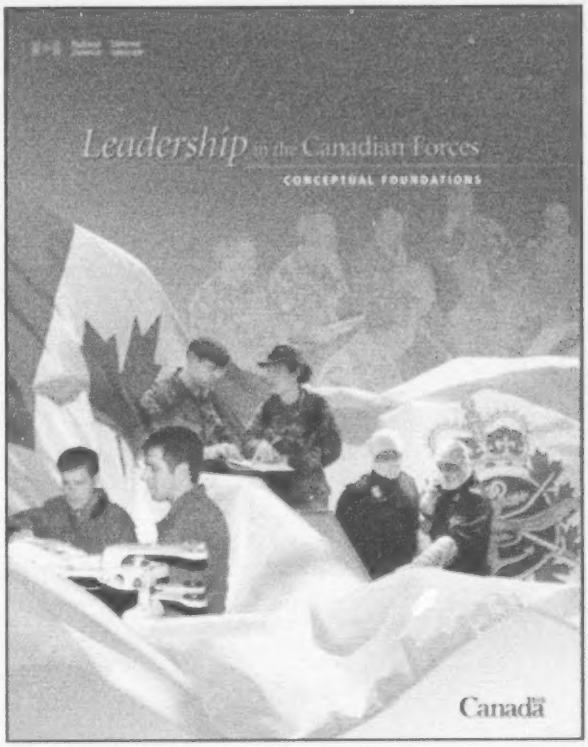

Canadian Forces Leadership Institute

NOTES

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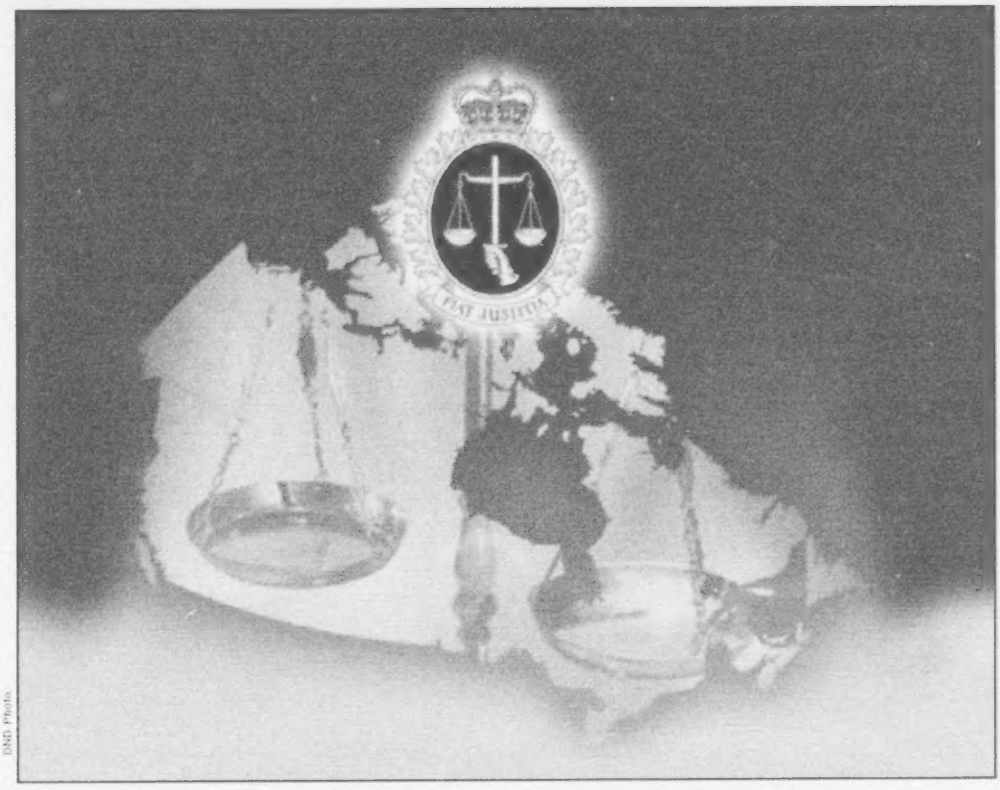


DND Photo

Compulsory Release and Duty of Fairness

by Kostyantyn Grygoryev

Introduction

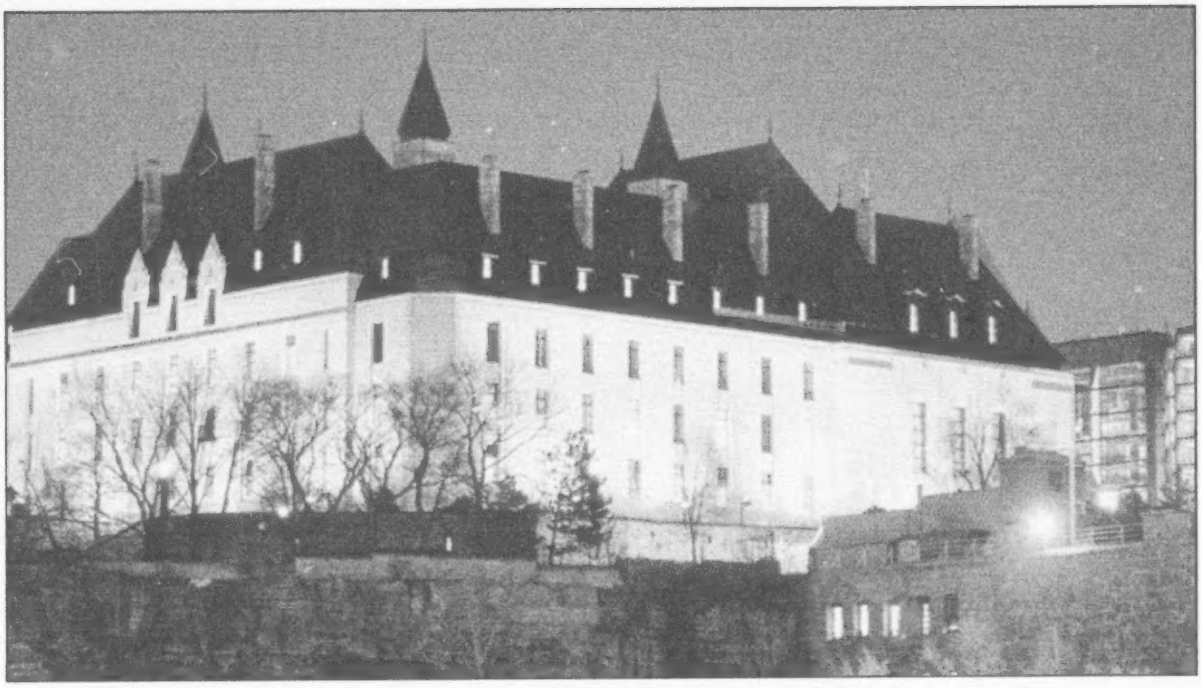
The Canadian Armed Forces (CAF) may release a soldier for a variety of reasons, which could broadly be classified as "voluntary" and "involuntary." An involuntary release may be triggered by a sentence of a court martial, unsatisfactory performance, reduction in strength of the force, medical disability, as well as some other reasons.[1] The releasing authority has a substantial degree of flexibility – for example, a service member subject to a release on medical grounds might be offered retention for a limited period of time. In a case when a member displays unsatisfactory conduct, the degree of the severity of the conduct may lead, for example, to counselling and probation, or outright release. Effective management of the human resources requires some measure of flexibility in release administration. But, as the Supreme Court of Canada (SCC) stated, flexibility implies discretion, and discretion attracts a duty of procedural fairness.[2] Yet, with respect to some involuntary release cases in the CAF, procedural fairness is breached. This article will examine the manner in which the CAF deals with remedying the breach of the procedural fairness changed following the SCC decision in the *Dunsmuir v New Brunswick* case.[3]

Duty of Fairness

The duty of administrative actors to act fairly in making decisions originated in the common law system as a principle of natural justice. This principle has two components – *audi alteram partem* (hear the other side) and *nemo judex in sua causa debet esse* (no-one may be judged in his/her own cause).[4] In administrative decision-making the "natural justice" concept has mostly been replaced by the concept of "duty of fairness," because of perception that the expression "natural justice" is too closely associated with the judicial process.[5]

But duty of fairness retained the same principles: an opportunity to be heard, and the impartiality of the process:

> The values underlying the duty of procedural fairness relate to the principle that the individual or individuals affected should have the opportunity to present their case fully and fairly, and have decisions affecting their rights, interests, or privileges made using a fair, impartial, and open process, appropriate to the statutory, institutional, and social context of the decision.[6]



Supreme Court of Canada

Duty of Fairness and Public Office

The origins of application of the common law duty of fairness to the decision makers in public offices can be traced to the UK case *Ridge v Baldwin*.[7] In Canada, the SCC broadened the principles of duty of fairness to apply to all public authorities whose decisions affect the "rights, privileges, or interests of an individual," confirmed that the duty of fairness was owed to the public office holders, and extended the duty of fairness to the office holders "at pleasure."[8] Appointment "at pleasure" means than an employee may be dismissed without a cause. In creating "at pleasure" appointments, the legislatures intend that the appointees have no security of tenure – in other words, they are subject to the will of the Crown.[9]

The *Dunsmuir* Decision

The *Dunsmuir* case arose out of a wrongful dismissal claim by a David Dunsmuir. Mr. Dunsmuir worked for the Department of Justice of the Province of New Brunswick. As a Legal Officer, he was a public servant under the Civil Service Act. But also, as a Clerk of the Court, he was deemed to serve "at pleasure." Mr. Dunsmuir was dismissed without a cause, but with a notice. Following a grievance process, and several rounds of court appeals, Mr. Dunsmuir's case reached the SCC. The SCC made a watershed decision that public employees whose employment is governed by a contract are not owed the duty of fairness. While Dunsmuir as a Clerk was a holder of an office "at pleasure," as a Legal Officer, he was also a contractual employee in public service. The Supreme Court found that the distinction between the two classes of employment was difficult to maintain in practice.

When the Crown acts as any other private sector employer in hiring its employee, it should be able to act in the same way when terminating them. Under the common law, both parties to an employment contract may end their relationship without providing a cause, provided they gave adequate notice. The contract is presumed to address the issues of procedural fairness, and there is no compelling reason to impose a duty of fairness on an employer.

Nonetheless, the Court realized that there were still situations when a public law duty of fairness applied. One situation occurs when a duty of fairness is implied in the statute governing the employment relationship; and the second when an office holder is deemed to be serving "at pleasure." Both these situations apply to the members of the Canadian Armed Forces.

Duty of Fairness in the Canadian Armed Forces Context

The CAF members belong to the class of "certain officers" who "serve at pleasure" and do not have a contractual relationship with the Crown.[10] The Federal Court of Canada highlighted the fact that civil courts have no jurisdiction to hear an action for wrongful dismissal from the military service.[11]

Elements of duty of fairness are present in many places in various regulations, orders, and directives concerning administration of the Canadian Armed Forces. For example, *audi alteram* element can be found in DAOD 5019-2, "Administrative Review."[12] The DAOD has a section, "Procedural Fairness," that specifies the minimum steps to ensure fairness of the administrative review process. In release administration, when a CAF member receives a notice of intent to recommend (involuntary) release, the notice must include the reasons for the recommendation, and the CAF

member has 14 days to submit objections. If the CAF member objects to the release, but the release proceeds, the CAF member must be advised of the reasons why the release is proceeded with, despite the objections.[13] The *nemo judex* element is present, for example, in the grievance process, where an officer whose act, decision, or omission in the matter of the grievance cannot act as the initial grievance authority.[14]

Breach of Duty of Fairness in Involuntary Release

The duty of fairness can be breached by either violating the *audi alteram* or *nemo judex* elements. Analysis of the Canadian Forces Grievance Board (CFGB) findings and recommendations in the grievances related to involuntary release may provide examples of how a duty of fairness has been breached:

> Provision of reasons for the release. A breach of procedural fairness was found when "the reasons justifying the release were totally inadequate,"[15] when "the decision maker had not provided proper reasons,"[16] or for not providing any written reasons at all.[17]
>
> Not providing the grievors with a notice of a contemplated decision.[18]
>
> Non-disclosure. Procedural fairness is breached when the relevant information is not disclosed, either to the decision-maker,[19] or to the grievor.[20]
>
> Not providing an opportunity to make representations to the decision maker.[21]

The *Dunsmuir* Effect

The *Dunsmuir* decision is most famous for elimination of the "patently unreasonable" standard of review, and for establishing that a contractual employment relationship nullifies considerations of duty of fairness (unless required by a statute). But what was its effect upon treatment of the breach of duty of fairness in compulsory release administration in the Canadian Armed Forces? It may be beneficial first to point out what the *Dunsmuir* **did not** change. It did not eliminate procedural fairness considerations from the release decisions. Since CAF members serve "at pleasure," and procedural fairness is a statutory requirement in the release administration, both pre-[22] and post-*Dunsmuir* cases[23] considered duty of fairness, and whether it was breached in the release process.

Yet, the *Dunsmuir* changed how the breach of procedural fairness is remedied. The key rested in two lines of the decision that did not attract many analysts' attention:

> Breach of a public law duty of fairness does not lead to full reinstatement. The effect of a breach of procedural fairness is to render the dismissal decision void *ab initio*.[24]

The CFGB and the Chief of Defence Staff (CDS), prior to *Dunsmuir*, took the position that in release cases where procedural fairness was breached, the subsequent review during a grievance process could cure the breach.[25] Often, grievors requested reinstatement as a remedy for unjustified compulsory release. But reinstatement is only available in a very narrow set of circumstances – when the release was by a decision of a service tribunal or a court, and such a decision is later rescinded.[26] Reinstatement is not available to administratively-released CAF members.[27] Prior to Dunsmuir, therefore, if the release was found to be unjustified, the CDS could only offer a grievor a reenrollment.[28]

After reviewing the *Dunsmuir*, the CFGB came to the conclusion that the approach of offering re-enrolment was incorrect. When the duty of fairness was breached during the release process, the decision must be void *ab initio*. The CDS's inability to reinstate the CAF members is, thus, irrelevant, "…since the decision to release a member in breach of their right to procedural fairness renders the release decision void as if it never had occurred."[29]

Conclusions

The *Dunsmuir* had a significant positive effect upon remedying the breach of procedural fairness in cases of compulsory release of CAF members. Re-enrollment was not a true remedy to the "wrongfully released" CAF members. It did not restore an aggrieved member to a position similar to that prior to the release: the reenrollment was not guaranteed (if, for example, the member's trade was at full capacity, and was not enrolling new soldiers), and the lost wages and benefits could not be recovered (since the CDS did not have a statutory authority to provide financial compensation). After the *Dunsmuir*, the CFGB, in cases of a breach of procedural fairness during a release decision, has been consistently recommending voiding the release *ab initio*.[30] In one of the first post-*Dunsmuir* cases dealing with the breach of a duty of fairness, the CFGB stated:

> [E]rrors in procedural fairness cannot be cured by a subsequent review. The Board observed that the jurisprudence in these situations has consistently been that CAF members are owed a high degree of procedural fairness, especially in administrative proceedings that could lead to their release.
>
> [S]ince the grievor was released without procedural fairness, his release should be rendered void ab initio, such that his employment relationship with the CAF be deemed to never have ceased.[31]

In practice, given the frequent rotation of the military personnel in key decision-making positions, and considering the degree of flexibility available to a decision-maker, after reconsidering the release decision with "fresh eyes," the CAF member may not even be released at all.

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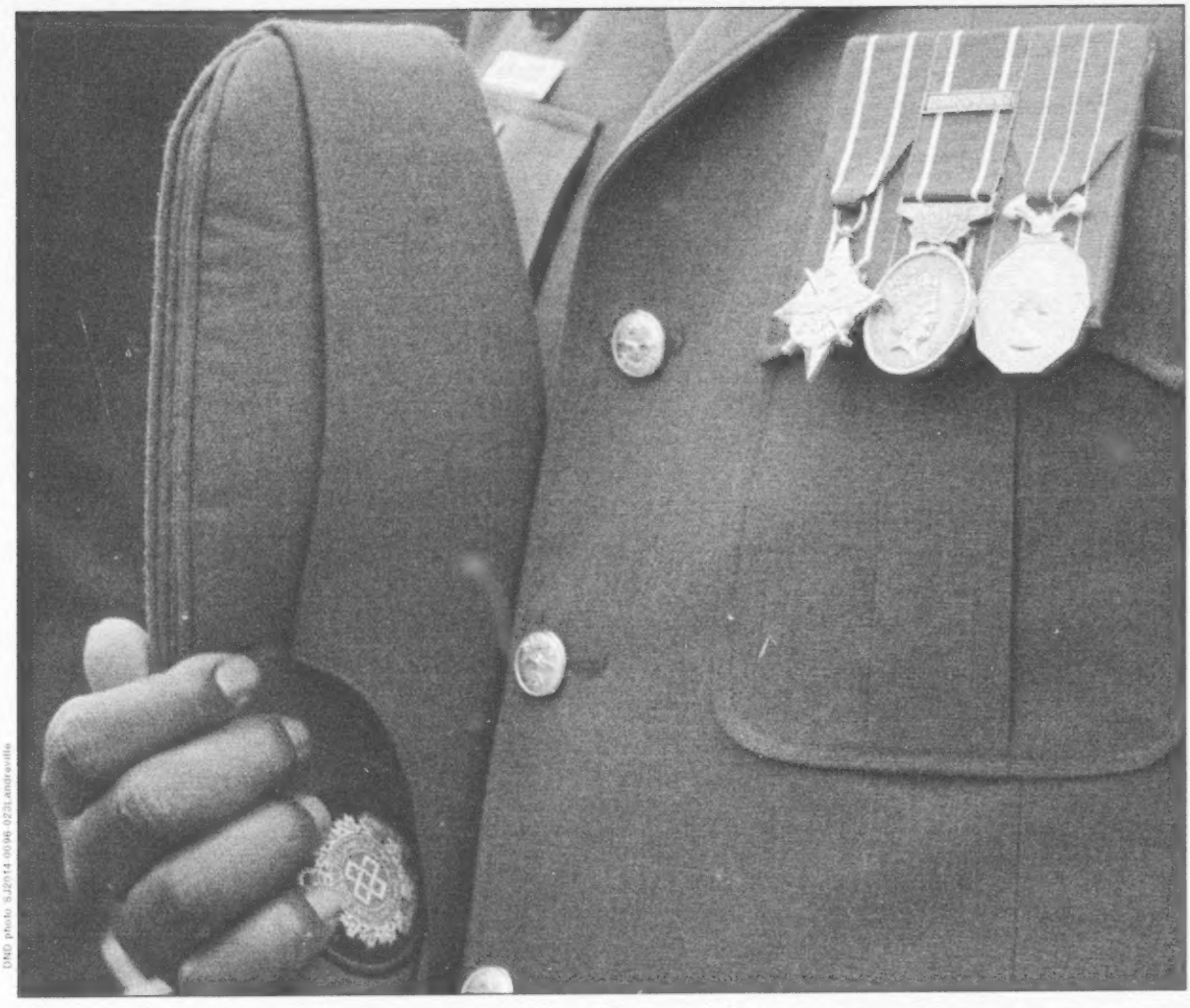

DND photo IS2014-0096-023Landreville

NOTES

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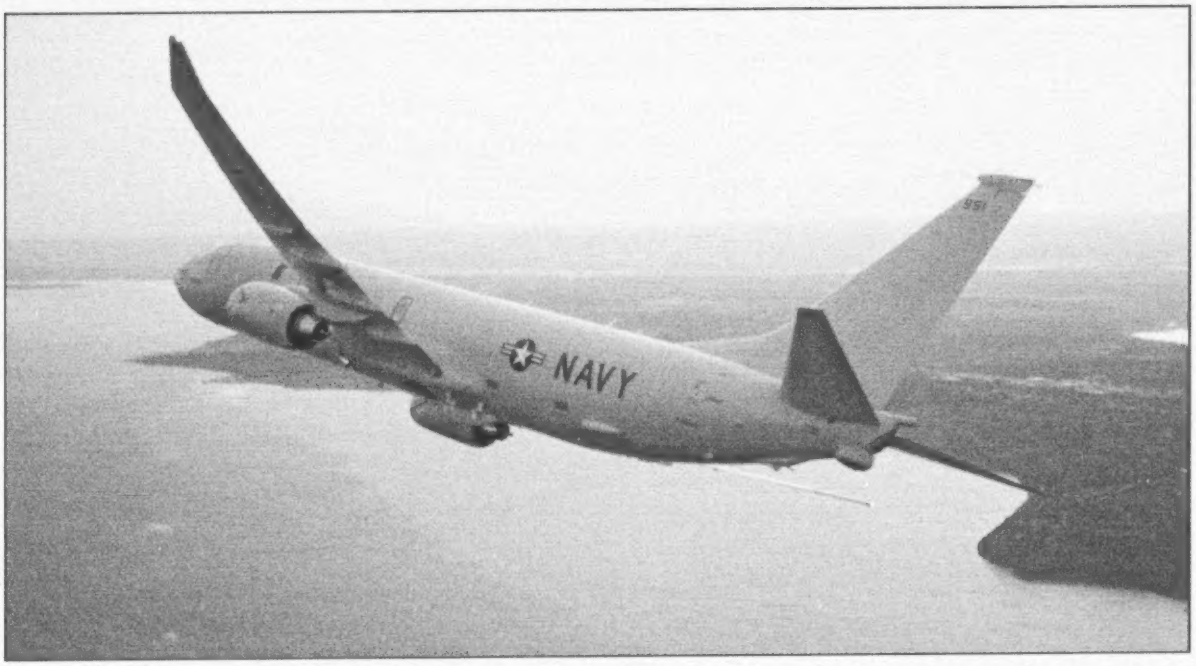
DND photo 739-IMG0025

The *Aurora* Chronicles

by Martin Shadwick

In the 25 years since the end of the Cold War, the much-changed geostrategic environment, the emergence of new challenges to national and international security, extremely tight fiscal environments, and in some instances, technological advancement (i.e., ever more capable satellites and UAVs) have prompted most members of NATO to reduce, or even to eliminate, their fleets of long-range maritime patrol/ISR (Intelligence, Surveillance and Reconnaissance) aircraft. In the United States and Canada respectively, these developments have claimed substantial numbers of P-3 *Orions* and CP-140 *Auroras*, although it must be acknowledged that the quantitative reductions have, in part, been offset in qualitative terms by the introduction to USN service of the P-8A *Poseidon* and the ongoing – indeed, recently expanded – upgrade and life-extension program for the bulk of the RCAF's long-serving CP-140 *Aurora* fleet. Much more dramatic were the Dutch and British decisions to exit the long-range maritime patrol/ISR business. These moves precipitated the sale of Dutch P-3Cs to Germany and Portugal, and, in the United Kingdom, the retirement of the *Nimrod* MR2 and the scrapping – quite literally – of its intended successor in RAF service, the *Nimrod* MRA4. Announced in 2010, the decision to abandon the *Nimrod* MRA4 reflected a 'witch's brew' of cost-overruns, repeated delays, and assorted technical and project management issues. As such, it bore more than a passing resemblance to Canada's experience with the CF-105 *Arrow*.

A second major trend line since the end of the Cold War has seen the gradual morphing of the traditional ASW-centric long-range maritime patrol aircraft into a hybrid maritime patrol/ISR aircraft (or, if one prefers, a true Multi-Mission Aircraft) relevant to blue water, littoral, and overland operations. This is not an entirely new development, in that traditional maritime patrol aircraft were almost by definition relevant to a diverse range of military (i.e., ASW, ASuW), quasi-military (fisheries protection and counter-narcotics surveillance) and non-military (i.e., search and rescue) tasks, but post-Cold War operational requirements related to peacekeeping, peace-enforcement, human security/R2P and counter-terrorism have necessitated the ability to perform an ever-wider array of roles. New sensors and new communications, data management, and data fusion capabilities have been fundamental to this transition. Canadian examples of this trend



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Boeing P-8A *Poseidon*

have included the use of *Auroras* to support security at the 2010 Vancouver Winter Olympics, the 2010 G8/G20 Summit, the 2009 Commonwealth Heads of Government Summit, and the Applanix camera mapping missions in Afghanistan in 2009, but, as Daniel Arsenault and Josh Christianson note in the Summer 2012 edition of *The Royal Canadian Air Force Journal*, the *Auroras* assigned to Task Force *Libeccio* in support of the NATO-led mission in Libya in 2011 provide the most noteworthy Canadian example of this metamorphosis. In the Libya operation, *Auroras* conducted overland intelligence, surveillance, reconnaissance and control, naval gunfire support, overland strike coordination and reconnaissance, maritime interdiction, and psychological operations.

A third trend – newer but gathering momentum – is the aerospace industry's quest to provide operationally-effective but lower-cost maritime surveillance/ISR options for those nations who *cannot afford*, or *do not require*, the capabilities provided by Boeing's 737-derived P-8 Poseidon (or, should it ultimately materialize, a comparable adaptation of the Airbus A320 series). Typifying this trend was Boeing's selection in 2013 of the Bombardier *Challenger 605* business jet as the basis for its Maritime Surveillance Aircraft (MSA) program. The MSA offers the global market a "capable, low-risk maritime surveillance system based on…proven P-8A mission system technology." Boeing lauds the *Challenger 605* as the "ideal platform to host MSA's mission system, sensors and communications equipment," one that can provide "the power, payload capacity, range, speed and endurance" needed for such missions as anti-piracy, coastal and border surveillance, search and rescue, and other maritime and overland applications. Field Aviation, Ohio-based but with a substantial Canadian operation, is Boeing's teammate in the venture. Indeed, Field Aviation is already a formidable presence in this market, having modified dozens of Bombardier *Dash 8*/Q-series turboprops for foreign coast guards and the U.S. Customs and Border Protection Agency. It also adapted a trio of Royal Danish Air Force *Challenger 604s* as multi-role maritime surveillance aircraft. Competitors in this growing market include Dassault (and other) business jets and variants of the Airbus C-295 turboprop.

As if to underscore the cost of such options as the P-8, the Harper government announced, on 19 March 2014, that the fleet of modernized and life-extended CP-140 *Auroras*, theretofore capped at only ten of the 18 aircraft originally purchased by the Trudeau government, would be expanded to 14 aircraft. In the first phase of the $548 million undertaking, "current competitively-won contracts will be used to complete the work on the four additional aircraft." The second phase, fleet-wide, would consist of the definition and implementation of three new capability enhancements, including a Link 16 data link, a Beyond Line of Sight (BLOS) satellite communications capability, and an improved self-defence suite. The "enhancements and modifications are expected to be completed by 2021, and extend the operational effectiveness of the 14 modernized *Aurora* aircraft to 2030 from 2020."

At first glance, the expansion of the modernized and life-extended *Aurora* fleet to 14 aircraft appears to strike an acceptable compromise between operational requirements (be they military, quasi-military, or non-military in nature, or domestic or expeditionary in locale), a tough economic environment, and a heavily burdened defence budget. Certainly, this column has long-argued that ten such aircraft were inadequate for Canada's needs. That said, one would be more sanguine about the post-*Aurora* future of maritime patrol/ISR – particularly long-range maritime patrol/ISR – if Canada's track record over the past 40 years had not been

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Boeing has selected Bombardier's *Challenger 605* business jet as the platform for its MSA program.

characterized by a monotonous proclivity for indecisiveness, false starts, turf wars, and ill-considered qualitative and/or quantitative reductions…and if recent statements attributed to military, industry, and other interested parties had not been so quick to trumpet the eventual acquisition of a "smaller, more affordable" successor to the *Aurora*, quite possibly sourced in Canada and perhaps lacking an ASW capability.

Our collective track record on long-range maritime patrol does not inspire confidence. The Trudeau government had the good sense to select a first-class aircraft in the *Aurora*, but procured too few for Canada's Cold War needs. The Mulroney government pledged to address this deficiency in its 1987 white paper – which called for six additional *Auroras* – but aborted the plan in its budget of April 1989 (i.e., *prior* to the end of the Cold War). The Mulroney government did acquire three CP-140A *Arcturus* – essentially *Auroras* with no ASW capability and a less-than-comprehensive surface surveillance capability – as flight crew trainers. The phased disposal of the *Arcturus* was set in motion during the Chretien era, but the most frustrating legacy of the latter was a fiscally-driven decision to divide the *Aurora* modernization program into a technically, industrially, and operationally messy series of 23 individual projects grouped into four blocks. The early Harper years witnessed both a major debate over the wisdom of truncating *Aurora* upgrade and life extension in favour of the quickest possible launch of a replacement program (the eventual compromise embraced ten upgraded and life extended *Auroras*), and, in the Canada First Defence Strategy of 2008, a pledge to replace the *Aurora* with ten-to-twelve new "maritime patrol aircraft" by about 2020. The March 2014 decision to modify four additional *Auroras* defers that replacement to 2030 (or conceivably even later, according to one published government document). Perhaps the only consolation is that Canadian decision-making on the rotary-wing side of the maritime aviation ledger has been even more problematic.

There is a curious disconnect between the 19 March 2014 statement on adding further aircraft and capabilities to the modernized *Aurora* fleet and the myriad reports, both published and unpublished, that Ottawa has in effect opted to eschew the "unaffordable" P-8 in favour of a "smaller, more affordable" successor to the *Aurora*. The Backgrounder document that accompanied the 19 March 2014 news release lauds the upgraded and life-extended *Aurora* as a full-scope long-range maritime patrol/ISR aircraft relevant to a broad spectrum of military (including ASW), quasi-military, and non-military

applications, both at home and abroad. True enough, but if those are desirable qualities in 2014, should not the *Aurora's* eventual successor be equally capable? Would a "smaller, more affordable" aircraft prove operationally responsive to current and future Canadian requirements?

There is no doubt that Boeing, Field, Bombardier and a host of other firms will continue to tap into a potentially lucrative global market for smaller and lower-cost alternatives to such aircraft as the P-8. Nor is there any doubt that modern sensors and data management systems will provide such alternatives with impressive surveillance, particularly surface surveillance, capabilities. Indeed, there may well be credible domestic and/or expeditionary niches for such aircraft in the RCAF inventory as *supplements* to a larger, truly multi-mission successor to the *Aurora*. Nevertheless, if Canada aspires, as it should, to an *Aurora* replacement with the long range and endurance necessary for challenging mission profiles– be they military, quasi-military, or non-military – in the Atlantic, the Pacific, the Arctic, and overseas, the space and capacity for a full-scope mission avionics suite (including robust ASW, since it is integral to credible general-purpose surveillance/sovereignty-protection, security, and marine domain awareness), armament, adequate quantities of droppable stores (i.e., sonobuoys and SAR kits), and the growth potential to cope with future demands, it is difficult to see how "smaller, more affordable" turboprops and business jets – no matter how *extensively* or *expensively* modified – would suffice. Bombardier's C Series could prove a more tempting platform, but would introduce additional technical risk, substantial non-recurring expenses, and potential logistical support challenges if the RCAF was the only customer for a maritime variant. A *Poseidon*-type aircraft does indeed raise affordability issues (as did the *Aurora* when it was first acquired), but its broader capabilities could render it a much more cost-effective acquisition than smaller, seemingly more affordable alternatives. One suspects, too, that a *Poseidon*-type aircraft would be a much easier 'sell' to the Canadian public than, say, the F-35 or some elements of the National Shipbuilding Procurement Strategy.

A few final thoughts. First, Canada's future maritime surveillance/ISR needs must increasingly be met by a holistic blend of manned aircraft, satellites, and UAVs. Second, as Ernest Cable has reminded us, a future Canadian inability to meet bilateral CANUS maritime patrol commitments in the Atlantic and the Pacific could lead to the usurping of Canada's responsibilities by the United States. This carries a variety of potentially disquieting consequences. Third, smaller, 'home-grown' aircraft may bring more industrial opportunities, but those opportunities cannot constitute the *raison d'etre* of the *Aurora's* successor. And fourth, time is still of the essence. The announcement of 19 March 2014 did buy us additional time to ponder the replacement of the *Aurora*, but Canada will not look terribly clever if attractive options, including the P-8, go out of production before we act.

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CMJ

DND photo IE2007-056-001 by Corporal Evan Kaulz

An *Aurora* on the tarmac at Iqaluit International Airport during Operation *Nanook 07*, 8 August 2007.

DND photo IE2011-M127-004 by Corporal Mathieu St-Amour

Situational Awareness Depends upon Intelligence Gathering, but Good Preparation Depends upon Knowledge of the Issues

by Sylvain Chalifour

We all have very busy schedules. Nevertheless, it is essential to stay informed about the world around us, especially issues related to defence, international security, and world politics. To that end, allow me to introduce my latest discovery: Areion Group, a French publishing company that specializes in geopolitics and defence, and produces eight monthly and bi-monthly journals that are relevant to anyone in the profession of arms.

Each bi-monthly special issue of *Défense et sécurité internationale (DSI)* focuses upon a specific military theme. Recent special issues have covered the US Navy, land combat, the Arctic as a strategic issue, the revival of naval warfare, warfare in space, fighter aircraft, and artillery and its future. Each special issue consists of about 100 pages (depending upon the subject) in which civilian and military specialists write about military supply systems, inventories, trends, directions for military or strategic resources, and so on – situation reports on a world that is constantly changing.

DND photo ilh2014-070-001

For example, the theme of Special Issue 32 of *DSI* is cyber warfare. In the first section of the issue, cyber security and cyber defence researchers define cyberspace and the adversaries that could navigate there. Like me, you may be asking yourself whether this represents a revolution in the military world. Would defining the paradoxes of cyber warfare help answer that question? Would you like to learn more about what capabilities for action are already in place and whether there is asymmetry in cyber warfare? What issues concerning cyberspace are at the heart of international geopolitical tensions, and what are the roles played by Iran, China, North Korea, Russia, and the United States? Our American neighbours cite a cyber–Pearl Harbor as an example of a threat; it is easy to imagine to what they are referring. But what is the likelihood of such a disaster occurring in the short term? Have you ever heard of the Stuxnet virus? The authors describe that real-life example of a cyber attack in detail, noting that the virus was developed by the Israelis and the Americans to stop Iran's heavy water production program. Would you like to know how the virus was spread, how it infected a high-security research facility, and what were the results of the attack? These are, of course, important questions – but would it not be better to think about how to defend ourselves if such an attack was mounted against our own systems?

And indeed, the second section of this *DSI* Special Issue presents possible solutions to threats in cyberspace, answering questions such as the following: What are the national and international legal frameworks for cyberspace? Is there an ethics governing the use of force in cyberspace? What are the major trends in national cyber security strategies? What is the French doctrine on cyber warfare? China is talking about

DND photo ilh2014-070-003

cyber defence, Russia is talking about cyber strategic power–so where is the United States in terms of cyber tactics? The articles in this issue present the unvarnished reality, backed up by a solid reference list. The bibliographic references in French and English alone are worth their weight in gold. You may also be interested in Areion Group publications in other fields, such as geography, international politics, cartography, and sociology.

I would also like to take this opportunity to mention another impressive publication, the monthly journal *Diplomatie*, whose bimonthly special issues are also relevant to us.

In a format similar to that of *DSI*, each special issue of *Diplomatie* is 100 pages in length and presents an in-depth exploration of a particular subject likely to be of interest to military readers. For example, several have focused upon a particular world power: the United States, Russia, India, and Brazil. Each of those special editions delves into the history of the country, its political situation, the functioning of government, the country's strategic issues, its military and economic power, and so on. Others feature global issues such as space, the geopolitics of water, different forms of trafficking, nuclear power, conflicts around the world, and economic espionage.

Take, for example, the special issue dealing with the global geopolitics of narcotics trafficking. It contains a wealth of information about the history of the manufacture of illicit substances and the trade in legal and illegal drugs, as well as global positions on these national and regional issues. For example, you'll find answers to the following questions: At the global level, what are the powers in place? How does the money circulate? How do criminal networks function? How are we combatting drug trafficking? What are the channels in Europe, Africa, Asia and the Americas? Everyone has heard of the cartels. But how are they formed? How do they function? Where are they? How are we combatting them? The Zetas are one of the cruellest cartels in the world. How do they operate with such military-style precision and efficiency? I could say much more about the lobbies and networks and the national influences and international challenges described in this issue, but space does not permit it. If you want to learn more about these two publications, I suggest that you visit the website http://www.geostrategique.com and have a look at the back issues that are available. You are sure to find some fascinating reading on a subject that interests you. But beware: once you start, you may not want to stop.

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BOOK REVIEWS

Military Workfare: The Soldier and Social Citizenship in Canada

by Deborah Cowen

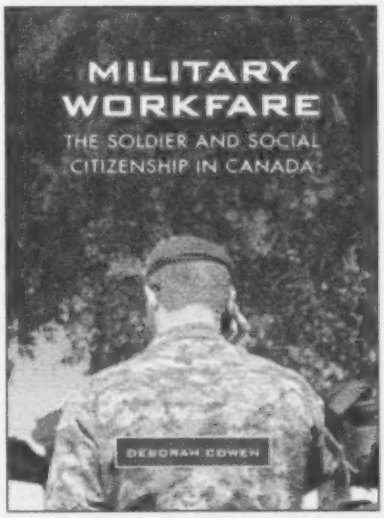
Toronto: University of Toronto Press, 2008

320 pages

ISBN: 978-0-8020-9233-5

Reviewed by Scott N. Romaniuk

Parliament Hill served as the venue for a speech by Prime Minister Stephen Harper in the spring of 2006, in which he spoke of new plans to be implemented for veterans of the Canadian Armed Forces (CAF). 'War on Terror' – (WoT) induced pressures on Canada heightened controversy over the nation's mission in Afghanistan initiated back in October 2001. His address, like that of William Lyon Mackenzie King in 1942, focused upon emerging "blueprints" regarding soldiers as citizens, and upon bringing the concepts of warfare and welfare closer together. In *Military Workfare: The Soldier and Social Citizenship in Canada*, Deborah Cowen, an Assistant Professor in the Department of Geography at the University of Toronto, incisively examines the warfare-welfare-citizenship triad in the contemporary period, and raises important questions in a period substantially different from the one in which Canada found itself some 60 years ago.



The soldier assumes a paramount position in this investigation because the soldier serves as the basis for rethinking "social citizenship and social obligation in neoliberal times" (p. 7). Cowen considers the "continuities and transformations of both in the relationship between soldiers and the social," and the potential for learning outcomes in the context of making the geographies of citizenship, welfare, and warfare explicit rather than assumed" (p. 7). The book's framework emerges from these points, and the time frames of the Second World War and the WoT also emerge. She contends that during the course of global government funding of extensive confrontation in distant theatres of war (i.e., George W. Bush's Wilsonian idealism-inspired foreign policy in the post-2001 period), concern for the health and welfare of states' populations demands greater attention in which we "take the spatiality of politics and identity serious in both its fixity and its flux (p. 7)."

Cowen examines five decades of political struggle, economic change, cultural shifts, and geographic transformation with respect to many aspects of Canadian citizenship and labour. The idea of the nationalization of citizenship as a particularly 'loaded idea' figures strongly throughout the book. The notion helps to deliver the central argument of the soldier representing a core element in the puzzle of social citizenship. In doing do, Cowen

posits "war as a precedent, shadow, and foundational exception for civilians welfare and paradoxically for civilian *work*fare too" (p. 7). She follows on this line of argumentation by building a genealogy of military citizenship in Canada spanning decades. Concentrating upon a number of critical instances during the long and robust history of Canada's military practices in various locations around the world, Cowen traces shifts in the practice of government in what she claims is an unfortunately overlooked "form of national work and belonging" (p. 20). As a leader in liberal government, Canada, she contends, is a unique experiment of multiculturalism, bilingualism, and "diversity," which lends dimension to the nature of specific trends (p. 22).

One cannot overstate the quality of Cowen's work, given the vast terrain traversed. The central argument is reinforced through multiple layers of investigation. Cowen delves into archival material and navigates a large field of tectonic shifts that have taken place in Canadian history to convey a story of the soldier and the soldier's relationship with social forms of citizenship. She reminds readers that in order to understand military citizenship, the necessity of connecting the concept with the broader political and geographies of war is essential. She opines that war's pervasiveness has come into flower in the past several decades and now easily "escapes the categories that once worked to contain it" (p. 230). After President George W. Bush declared the war in that theatre, it continued to rage, not only from multiple sides, but on various layers, so as to include regular and asymmetric force. Cowen describes the 2003-2008-period as marking a watershed in war, and a watershed for the solder and the citizen. Spatial, temporal, and ontological categories that once were emblematic of modern warfare have run into one another, resulting in "definite although certainly complex and contingent implications for military forces" (p. 231).

Changing dynamics of politics beyond national borders have also greatly affected Canada's national security, the manner in which the country participates in military conflict, and the portrait of Canada's domestic militarism. Cowen points to the changing conceptions of security by extending her provocative study to envelop issues of economics and security, official discourse, the practices of the state, and the role that Canada is defining, not only for itself as a state, but also in relation to the United States (US) as its closest ally. Taking stock of these dimensions of Canada and the broad category of war facilitates a discussion of Canada's evolving role further afield. Cowen then turns another way to observe variations in Canadian policy on the provincial level, with special attention devoted to Alberta for its simultaneous role as a "storm trooper" of neoliberal politics and policies across Canada, and for voicing its support for ambitions of the Bush administration, for which she maintains the province earned a special place as a global minority in the so-called "Bush camp" (p. 244).

Cowen writes of "Neoliberal military citizenship," whereby the soldier should not be seen as a "figure" intimately linked with democratic principles or political rights, even though "it was through the mass sacrifice of the population through service to the nation during the Second World War that post-war citizenship was assembled" (p. 255). Shifts that have taken place, she opines, were not a result of neoliberal government/governance. Cowen's account of the history of the soldier, military, and their relationship with the state illustrates "work as a condition for welfare" as something deeply rooted in Canada's military history, which endured through the course of the "brief life of the welfare state" (p. 255). Her praiseworthy inclusion of critical theory with respect to warfare and politics, and international relations (IR) establish for readers valuable positions from where to consider the shaping of national belonging, together with belonging beyond political confines. Even as political trajectories of Canada and of other states continue to evolve and adapt according to both internal and external conditions, the soldier and the soldier's position should be seen as less peripheral in the 21st Century.

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Challenges in Intelligence Analysis: Lessons from 1300 BC to the Present

by Timothy Walton

Cambridge: Cambridge University Press, 2010

310 pages, $30.01

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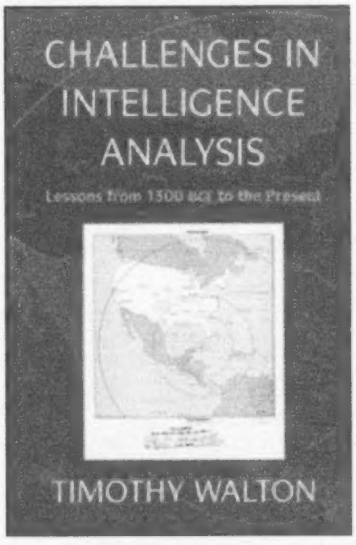
Reviewed by Ross Gouseinov

Events such as 9/11 and the Iraq War have once again pushed the notion of 'Intelligence failure' to the forefront of security discussions. Similar to what occurred in the past, these events introduced proposals geared towards reforming the Intelligence Community. Much of the focus of these proposals, however, lay in reorganizations, creation of new departments and agencies, and an increased reliance upon advanced technologies. In terms of the Intelligence Cycle, most of the efforts have focused upon restructuring and updating the Direction and Collection steps, respectively.[1] Little, if any, attention has been given to arguably the most important step of the Cycle: improving analytical thinking. Timothy Walton, adjunct professor of Intelligence Studies at Mercyhurst College, and a former analyst for the CIA, addresses this gap for the benefit of both the members of the profession of arms and the Intelligence Community.

As the title of his book suggests, Walton attempts to outline the difficulties and pitfalls in providing accurate analysis and interpretation to decision makers. His is a compelling study of the history of intelligence analysis, from Biblical times to the present. Although each historical situation is unique, Walton provides

common principles which are helpful in identifying the main issues, evaluating the evidence, and laying out the options and risks. Even though the scope of the book focuses primarily upon security-related issues, it does not limit itself to this realm. It also discusses the applications of analysis in business and marketing-related intelligence events.

Walton begins with a definition of analysis, and a discussion of the main challenges faced by an intelligence analyst: uncertainty, surprise, deception, and the future. He then describes some of the techniques that can deal with these challenges, such as chronology and timeline, link analysis, competitive hypotheses, and various matrix models. Finally, he stresses the importance of presenting the decision maker with, not only the *problems*, but also the *options* and the *opportunities* that are available to him. Following the initial chapters dealing with analysis challenges and solutions, Walton proceeds to cover 39 historical events, ranging from Hebrew spies in Canaan, to Caesar's campaigns in Gaul, to 9/11 and Iraqi weapons of mass destruction. A particular emphasis is placed upon Intelligence analysis in the 20th Century. The cases are historical summaries that follow Walton's own analysis of a given event. The author notes that cognitive biases play a significant role throughout the book, especially confirmation bias, 'groupthink,' and anchoring bias. If the reader is interested in a more in-depth study of a particular event, a recommended reading list is included at the end of each study.



The author successfully outlines the main facts related to each historical event, and then demonstrates how Intelligence played a critical role in almost every major conflict, or campaign, in history. Many of the events and analysis described by Walton are relevant to the modern geopolitical context. For example, the lessons he outlined in his chapter dealing with the British counter-insurgency operation in Malaya was not lost upon General David Petraeus and Lieutenant General James Amos, when they wrote the US Counterinsurgency Field Manual. Furthermore, the indicators outlined in "the fall of the Shah" chapter and how analysts failed to capitalize upon them closely resemble the situation in the Muslim world prior to the Arab Spring. Walton also provides interesting anecdotes, such as the fact that link analysis, now a standard component of any intelligence analyst's tool kit, was first created by FBI Counter-Intelligence during their hunt for atomic spies during the Cold War, and that the phrase, "winning the hearts and minds" of a populace first originated with the British during the Malaysian counterinsurgency. Furthermore, events are not described in a vacuum, as Walton refers to previously discussed events and then compares them to one another.

The book does have its weaknesses. In certain chapters, it fails to draw the link between the analysis techniques presented in the introductory chapters and the historical cases. For example, his account of Moses sending spies into Canaan only summarizes what took place, with no mention of what analysis technique was or was not used. In discussing Stalin's assessment of a German attack, the book does not analyze why Stalin refused to believe the indicators presented to him by his intelligence staff that pointed to an imminent attack. Walton simply states that "Stalin's failure to assess Hitler in 1941 was not due to a lack of information" (p.86). Moreover, Walton does not clearly indicate why he specifically chose those 39 events for discussion, other than by saying that they were "of interest for an intelligence analyst." In that case, why was there no mention of the Battle of Midway, D-Day, or the Battle of the Bulge, as they were all significant 20th Century events in which Intelligence played a key role. Moreover, the major weakness of the book is the lack of sources in any of the author's claims, which leads to confusing statements. For example, Walton writes that shortly before Igor Gouzenko's defection (5 September 1945), Soviet Spy Elizabeth Bentley had provided information to the FBI field office in New Haven (p.116). In fact, Bentley went to the Bureau office in New York on 7 November 1945. Furthermore, the author claims that it was Harry Gold, a courier for a number of Soviet spy rings, that identified Klaus Fuchs, a Soviet Atomic spy, to the authorities, whereas in reality, it was Fuchs who identified Gold (p.117).[2]

In essence, *Challenges in Intelligence Analysis* is an excellent introduction for anyone interested in intelligence analysis and its shortcomings. The book does a good job with respect to describing historical cases in which analysis was undertaken. However, it lacks depth in providing the details of that analysis. Nonetheless, this book is highly recommended overall, and it will doubtless spark further academic research into analysis, how it is conducted, and its impact upon the outcomes of operations.

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NOTES

1 The intelligence cycle is the process of developing unrefined data into polished intelligence for the use of commanders and policymakers. It consists of five steps: Direction, Collection, Processing, Analysis, and Dissemination.

2 Amy Knight, *How The Cold War Began: The Igor Gouzenko Affair and the Hunt For Soviet Spies*, (New York: Carroll & Graf, 2005); Allen Hornblum, *The Invisible Harry Gold: The Man Who Gave the Soviets the Atom Bomb*, (New Haven, CT: Yale University Press, 2010); Hayden Peake, "Intelligence Officer's Bookshelf," at https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol-55-no.-2/intelligence-officer2019s-bookshelf.html, July 06 2011. Accessed 10 December 2012.